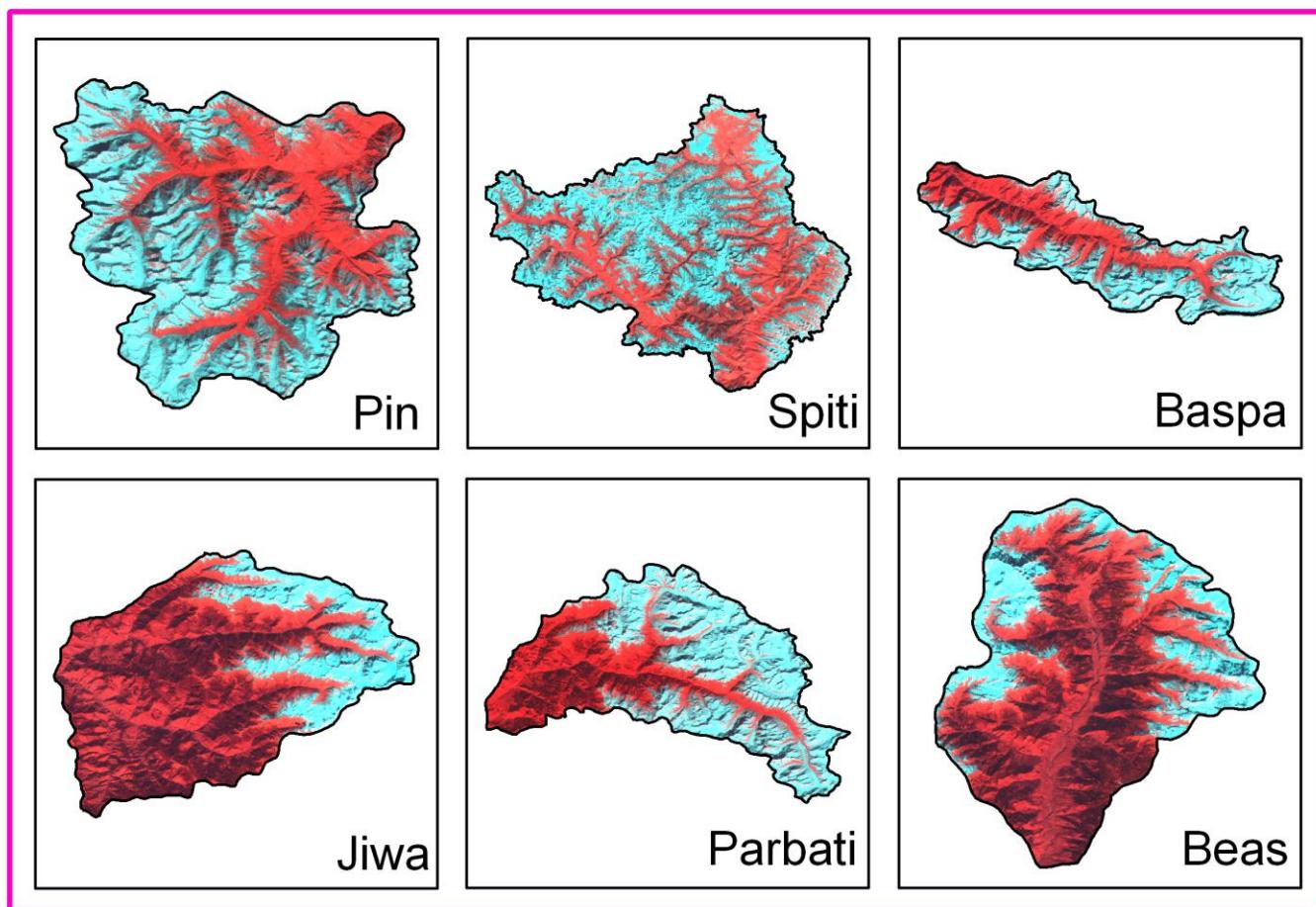


SNOW COVER ATLAS OF SATLUJ BASIN

Sub basins: Pin, Spiti, Baspa, Jiwa, Parbati and Beas

(A Joint Project of Indian Space Research Organization and
Ministry of Environment, Forests & Climate Change, Govt. of India)

Year : 2013-14



State Centre on Climate Change
(State Council for Science Technology & Environment, Shimla),
Himachal Pradesh
and
Space Applications Centre (ISRO)
Ahmedabad - 380015

March, 2015

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SPACE APPLICATIONS CENTRE (ISRO), AHMEDABAD - 380015**DOCUMENT CONTROL AND DATA SHEET**

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Originating Unit	Geo Sciences Division, Marine, Geo and Planetary Sciences Group, Earth, Ocean, Atmosphere, Planetary Sciences and Applications area, Space Applications Centre (ISRO), Ahmedabad-15
Abstract	This atlas gives subbasin-wise distribution of snow cover in the Satluj basin from October 2013 to June 2014. The subbasins included in this report are Pin, Spiti, Baspa, Jiwa, Parbati and Beas. The areal extent of snow cover was estimated in fully automatic mode using Normalized Difference Snow Index (NDSI) based algorithm. For this purpose AWIFS sensor of Resourcesat satellite was used. This atlas gives snow cover products, statistics and seasonal snow depletion curves. It is expected that this data will be useful for hydrological and climatological applications.
Key words	Snow cover, NDSI, AWIFS, depletion curve, Pin, Spiti, Baspa, Jiwa, Parbati and Beas basins.
Security Classification	Unrestricted
Distribution	As per list

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1. Introduction

Snow covers almost 40 per cent of the Earth's land surface during Northern Hemisphere winter. This makes albedo and areal extent of snow as important component of the Earth's radiation balance (Foster and Chang, 1993). In addition, large areas in the Himalayas are also covered by snow during winter. Area of snow can change significantly during winter and spring. This can affect stream flow for rivers originating in the higher Himalayas. All the rivers originating from higher Himalayas receive almost 30-50 % of annual flow from snow and glacier melt run off (Agarwal et al., 1983). In addition, snow pack ablation is highly sensitive to climatic variation. Increase in atmospheric temperature can influence snowmelt and stream runoff pattern (Kulkarni et al., 2002). Therefore, mapping of the areal extent and reflectance of snow are important parameter for various climatological and hydrological applications. In addition, extent of snow cover can also be used as input for numerous other applications.

Mapping and monitoring of seasonal snow cover using field methods are normally very difficult in a mountainous terrain, like the Himalayas. Therefore, remote sensing techniques have been extensively used for snow cover monitoring. Snow cover monitoring using satellite images were started by using the TIROS-1 satellite from April 1960 (Singer and Popham 1963). Since then, the potential for operational satellite-based mapping has been enhanced by the development of higher temporal frequency and satellite sensors with higher spatial resolution. In addition, satellites with better radiometric resolutions, such as NOAA have been used successfully for snow mapping (Hall et al., 1995). This is possibly due to the distinct spectral reflectance characteristics of snow in visible and near infrared regions. India has launched series of Indian Remote Sensing satellite (IRS) to study the different earth resources. Previously launched satellites have flown with many sensors having different spatial, temporal and spectral resolutions. Recently launched RESOURCESAT-1 satellite has three different sensors namely LISS III, LISS IV & AWIFS with different spatial, temporal and spectral resolutions as desired for different applications. AWIFS (Advanced Wide Field Sensor) is an advanced version of earlier Indian satellite sensor WiFS (Wide Field Sensor) with improved spectral and spatial resolutions maintaining the same repetitivity. There are a series of other polar orbiting satellites, like Landsat, NOAA and MODIS etc., which have provided information on different aspects of

snow. Geo-stationary satellites also proved their utility in mapping/monitoring the snow-covered regions. Information generated from satellite observations has been extensively used for snowmelt runoff modeling (Kulkarni et al., 1997).

2. Study Area:

The study area comprises of distribution of snow cover in Pin, Spiti, Baspa, Jiwa, Baspa, Parbati and Beas sub basins of Satluj basin. The location map of these sub basins is as per Figure 1.

3. Data used:

AWiFS data from October 2013 to June 2014 was used in this study.

4. Normalised Difference Snow Index (NDSI):

In general, the reflectance of snow is high at the red end of the visible spectrum. It tends to decline in the near-infrared region until 1090 nm, where slight gain in reflectance occurs and gives a minor peak at approximately 1090 to 1100 nm. One of the important difficulties in snow cover monitoring is the presence of cloud cover. Cloud has strong reflectivity in visible, NIR and SWIR regions while snow absorbs in SWIR, and this difference can be utilized for snow/cloud discrimination. Normalized Difference Snow Index (NDSI) utilize the normalized ratio of green and SWIR and is used as an automated approach for snow mapping addressing the shadow and cloud problems in snow bound areas.

Normalized Difference Snow Index was calculated using the ratio of green wavelength (band 2) and SWIR (band 5) of AWiFS sensor:

$$\text{Normalized Difference Snow Index (NDSI)} = (\text{band 2} - \text{band 5}) / (\text{band 2} + \text{band 5}) \quad ..(1)$$

To estimate NDSI, DN numbers were converted into reflectance. This involves conversion of digital numbers into the radiance values, known as sensor calibration, and then estimation of

reflectance from these radiance values. Various parameters needed for estimating spectral reflectance are maximum and minimum radiances and mean solar exo-atmospheric spectral irradiances in the satellite sensor bands, satellite data acquisition time, solar declination, solar zenith and solar azimuth angles, mean Earth-Sun distance etc. (Markham and Barker, 1987; Srinivasulu and Kulkarni, 2004).

5. Snow cover monitoring algorithm

An algorithm is developed to provide changes in the areal extent of snow (Kulkarni et. al., 2006). Snow extent is estimated at an interval of 5-days and 10-days, depending upon availabilities of AWiFS data. In 5-daily product, snow extent is generated scene-wise. In this product, snow and cloud extents are given. Estimate of cloud is important because, at times, snow is covered by cloud and this may be classified as non-snow area, leading to erroneous conclusions. In 10-daily product, three scenes are analyzed, if available. For example, 10 March product data of 5, 10 and 15 March was used. If any pixel is identified as snow on any one date then this pixel will be classified as snow on final product. This provides snow cover at an interval of 10 days, an important requirement in hydrological applications. Therefore, this product is generated basin-wise. Since this product is using three scenes, probability becomes high that at least in one scene, pixel may be cloud-free and this helps in overcoming problem associated with snow under cloud cover. If three consecutive scenes are not available, then all available scenes in 10 days window was used in the analysis. Differentiation between water and snow is difficult using NDSI image. In addition, separation of snow and water pixels is also difficult based on reflectance due to mountain shadow. Therefore, in the present algorithm, water bodies are marked in pre-winter season and are masked in the final products during winter. Flow diagram of the algorithm is given in Figure 2.

6. Results and discussions

In this atlas, basin-wise snow cover statistics, maps, and seasonal depletion curve is given from October 2013 to June 2014. Snow ablation pattern varies from basin to basin, depending on area altitude distribution in the basins. For example, in the Jiwa and Beas river basin, which is located in lower altitude zone and contains few glaciers has shown ablation of snow through out the winter season. However, in case of Pin & Baspa basins, located in high altitude region and large area is covered by glaciers has shown little or no ablation from January to April. For a period between October to December, snow ablation was observed in all basins.

Acknowledgements

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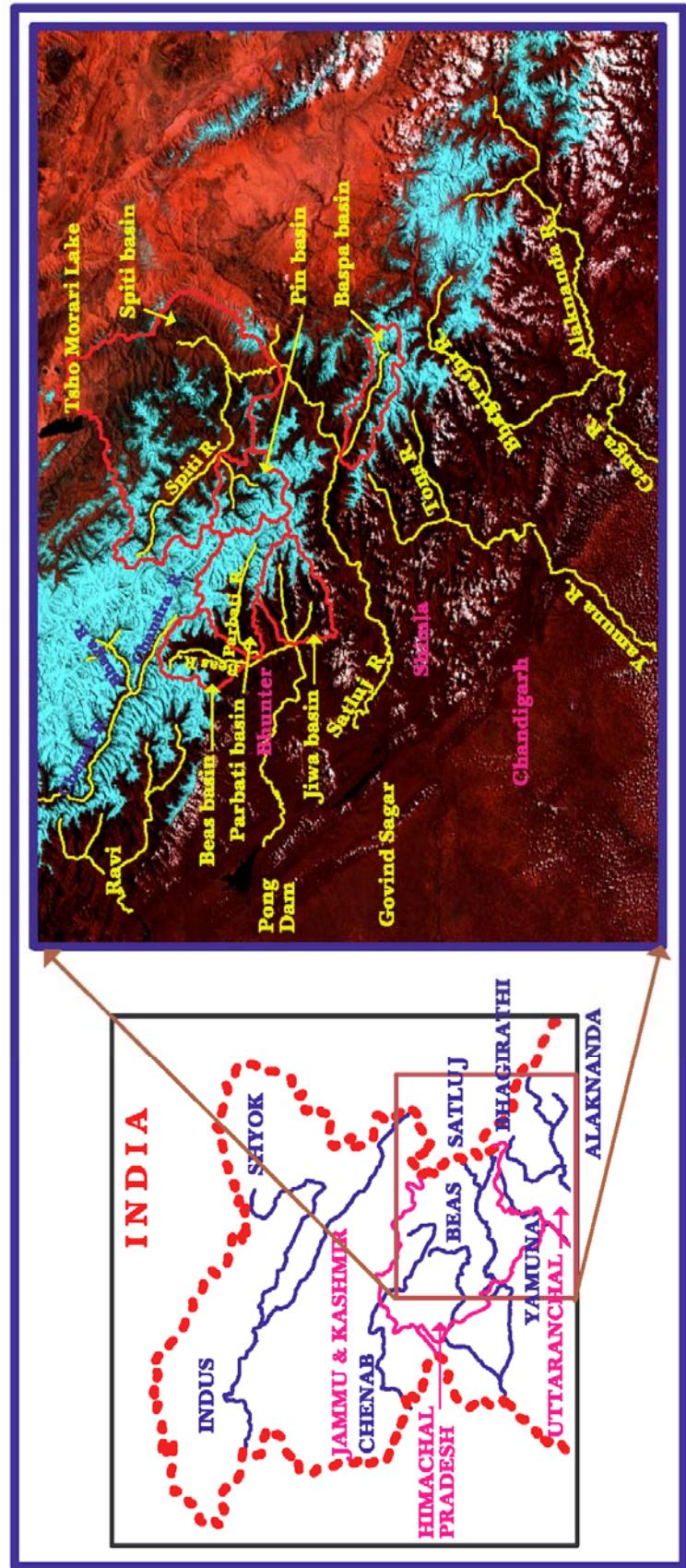


Figure 1: Location map of Pin, Spiti, Baspa, Jiwa, Parbati and Beas sub-basins (Part of Satluj basin)

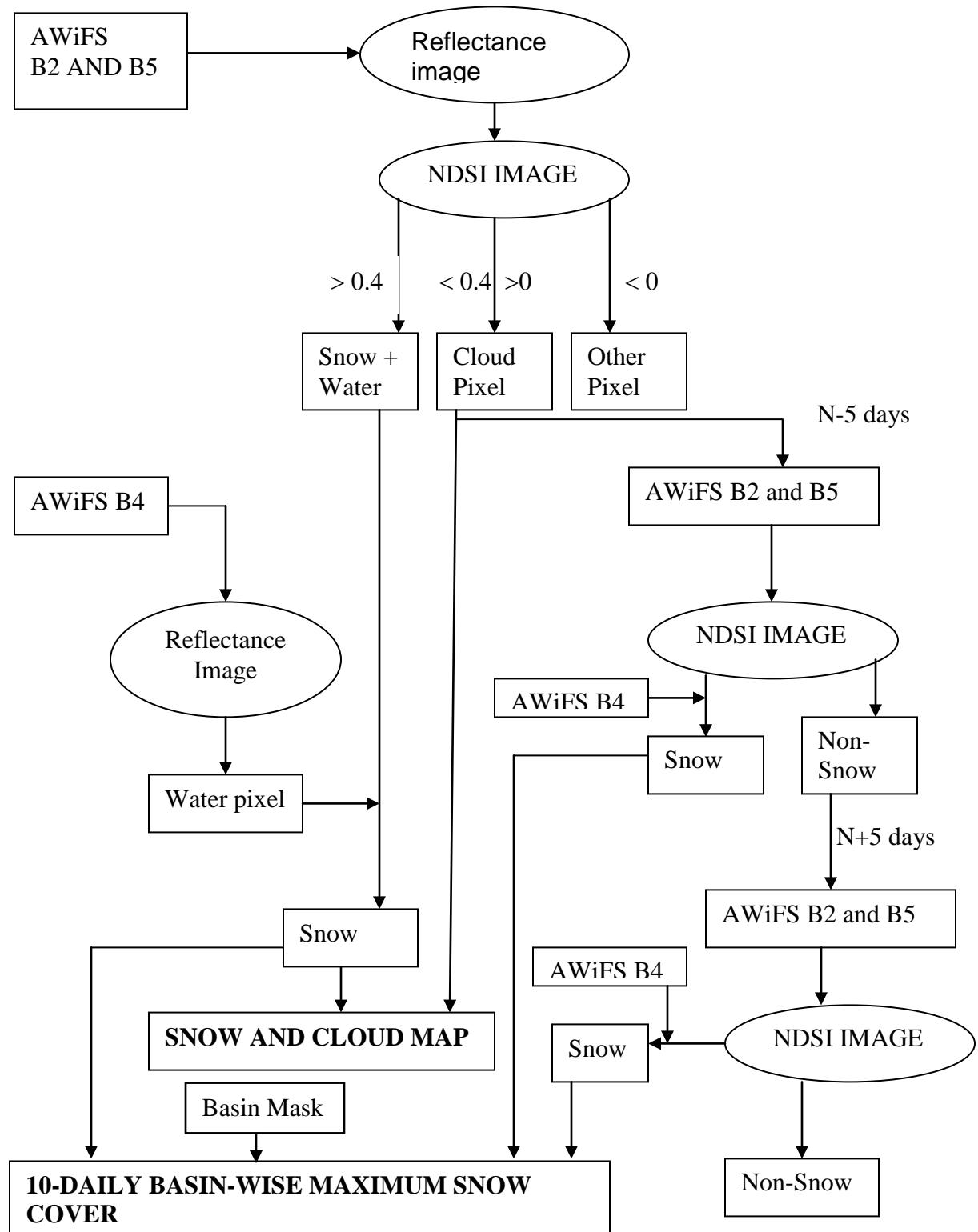


Figure 2: Algorithm for snow cover mapping using AWiFS data

PIN BASIN

AREAL EXTENT OF SNOW (5 DAILY)

BASIN NAME: PIN

BASIN AREA: 1266 sq km

S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover
October 2013									
1.	04-10-2013	164	13	5%	5.	18-10-2013	302	24	15%
2.	09-10-2013	182	14	Clear	6.	23-10-2013	278	22	Clear
3.	14-10-2013	568	45	Clear	7.	24-10-2013	261	21	Clear
4.	16-10-2013	432	34	Clear					
November 2013									
1.	02-11-2013	316	25	Clear	5.	17-11-2013	1057	84	Clear
2.	12-11-2013	1159	92	Clear	6.	21-11-2013	963	76	Clear
3.	16-11-2013	1071	85	Clear	7.	26-11-2013	847	67	Clear
4.	16-11-2013	1073	85	Clear					
December 2013									
1.	01-12-2013	770	61	Clear	5.	20-12-2013	679	54	Clear
2.	10-12-2013	578	46	25%	6.	23-12-2013	1055	83	40%
3.	15-12-2013	650	51	Clear	7.	25-12-2013	995	79	Clear
4.	19-12-2013	334	26	Clear					
January 2014									
1.	20-01-2014	1269	100	Clear	3.	27-01-2014	1267	100	Clear
2.	23-01-2014	1240	98	10%	4.	28-01-2014	1271	100	Clear
February 2014									
1.	01-02-2014	1260	100	20%	4.	21-02-2014	1266	100	40%
2.	16-02-2014	1271	100	Clear	5.	25-02-2014	1271	100	30%
3.	20-02-2014	1207	95	40%	6.	25-02-2014	1271	100	30%
March 2014									
1.	07-03-2014	1272	100	Clear	4.	17-03-2014	1272	100	100%
2.	12-03-2014	1225	97	100%	5.	21-03-2014	1272	100	10%
3.	16-03-2014	1271	100	Clear	6.	31-03-2014	1271	100	Clear
April 2014									
1.	02-04-2014	1271	100	20%	6.	14-04-2014	1267	100	Clear
2.	05-04-2014	1269	100	Clear	7.	24-04-2014	1260	100	Clear
3.	06-04-2014	1215	96	5%	8.	26-04-2014	1253	99	Clear
4.	10-04-2014	1266	100	Clear	9.	28-04-2014	1243	98	Clear
5.	12-04-2014	1269	100.	Clear					
May 2014									
1.	01-05-2014	1242	98	Clear	7.	18-05-2014	838	66	80%

2.	03-05-2014	1218	96	Clear	8.	20-05-2014	1069	84	3%
3.	04-05-2014	1139	90	20%	9.	22-05-2014	1088	86	Clear
4.	05-05-2014	1136	90	Clear	10.	27-05-2014	1072	85	Clear
5.	08-05-2014	1157	91	Clear	11.	28-05-2014	1060	84	Clear
6.	16-05-2014	1125	89	Clear					

June 2014

1.	03-06-2014	1037	82	Clear	6.	13-06-2014	882	70	Clear
2.	04-06-2014	1005	79	Clear	7.	16-06-2014	863	68	Clear
3.	06-06-2014	996	79	Clear	8.	20-06-2014	893	71	Clear
4.	09-06-2014	936	74	Clear	9.	28-06-2014	650	51	2%
5.	11-06-2014	925	73	Clear					

AREAL EXTENT OF SNOW (10 DAILY)

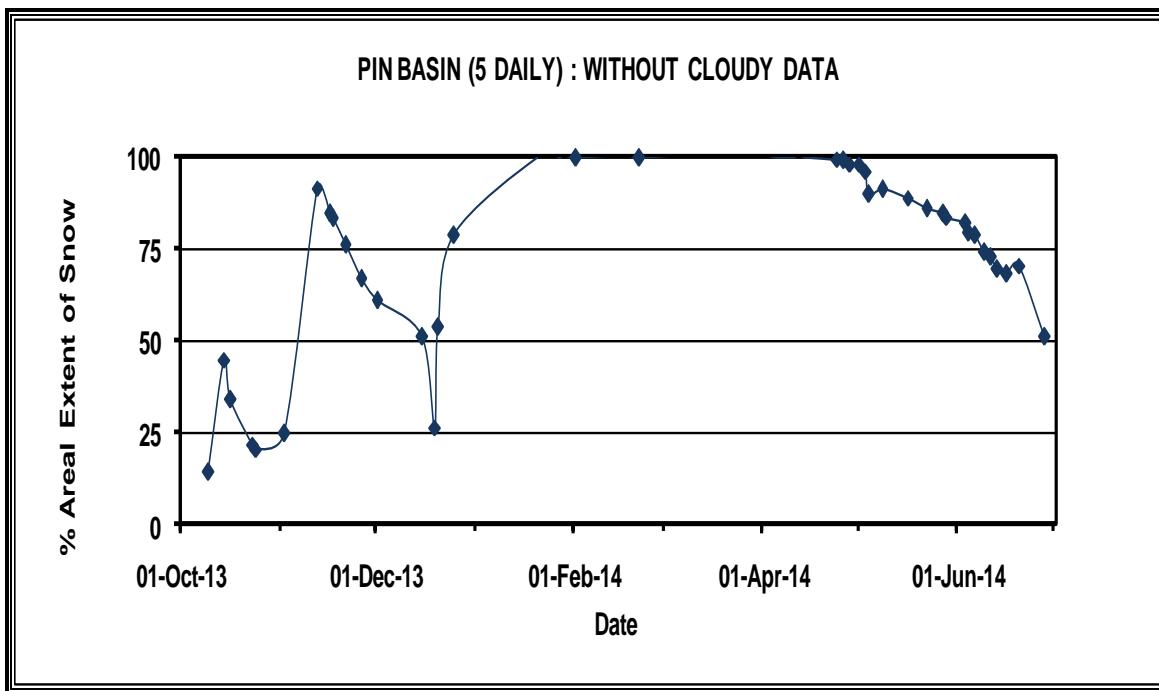
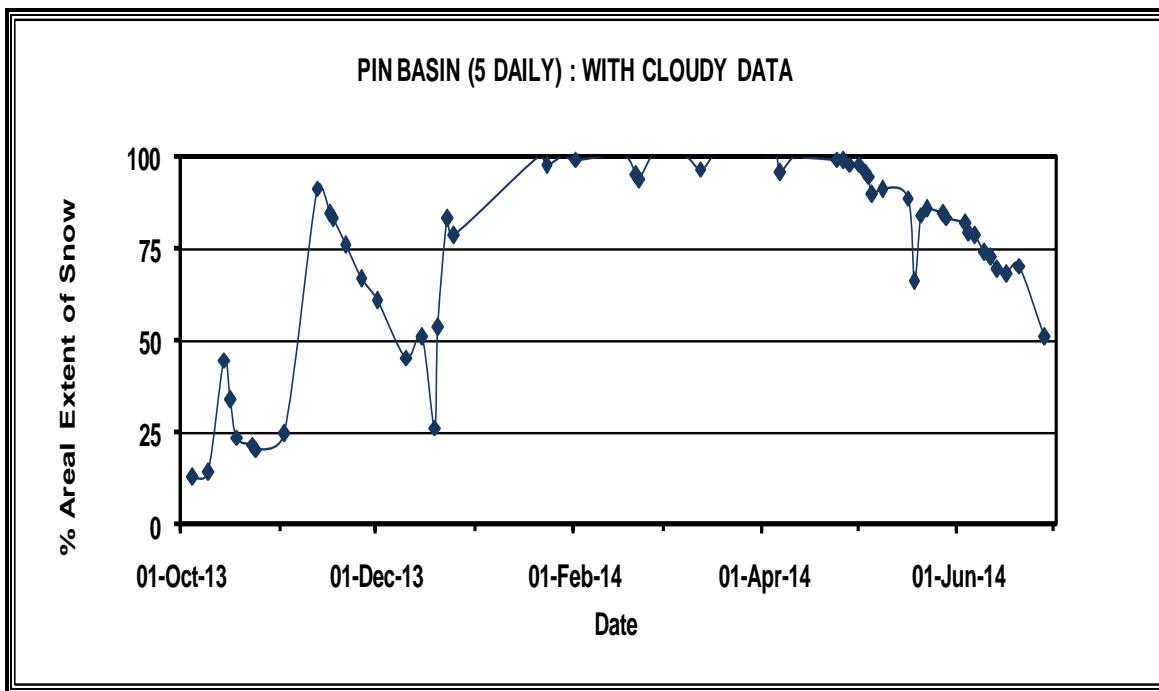
BASIN NAME: PIN

BASIN AREA: 1266 sq km

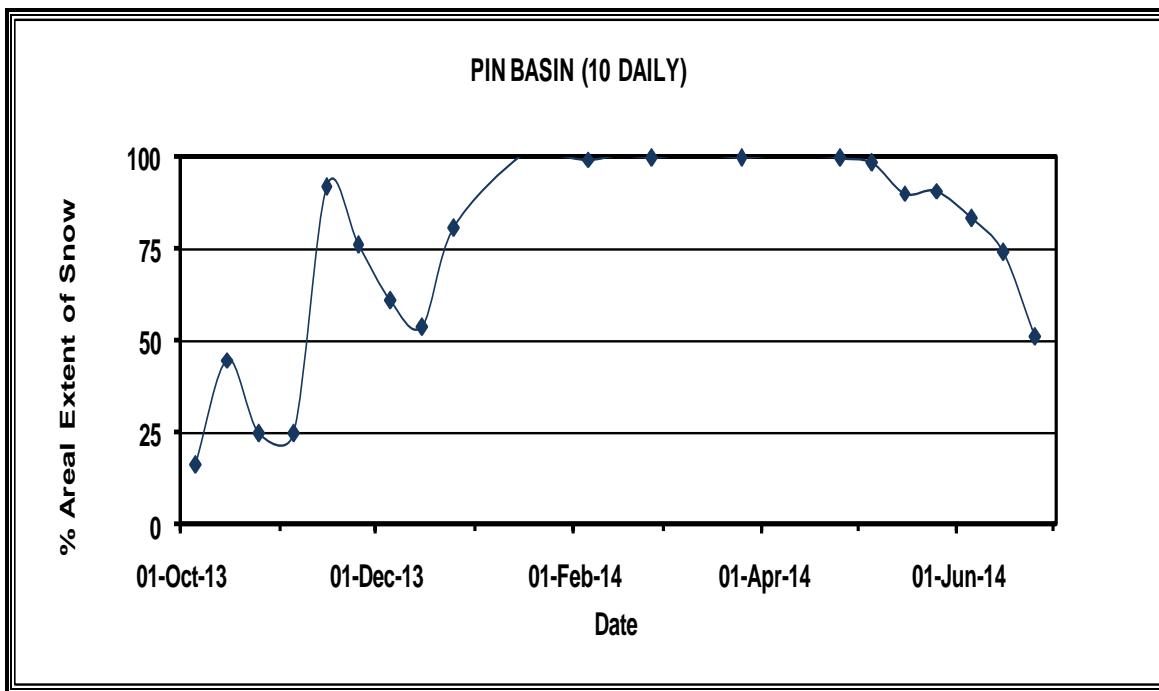
S. No	Date	Snow cover (sq. km)	Snow cover (%)	Cloud cover	S. No	Date	Snow cover (sq. km)	Snow cover (%)	Cloud cover
October 2013									
1.	04-Oct-2013	208	16	5%	6.	23-Oct-2013	315	25	Clear
2.	09-Oct-2013			Clear	7.	24-Oct-2013			Clear
3.	14-Oct-2013			Clear					
4.	16-Oct-2013			Clear					
5.	18-Oct-2013			15%					
November 2013									
1.	02-Nov-2013	315	25	Clear	5.	21-Nov-2013	931	73	Clear
2.	12-Nov-2013			Clear	6.	26-Nov-2013			Clear
3.	16-Nov-2013			Clear					
4.	17-Nov-2013			Clear					
December 2013									
1.	01-Dec-2013	771	61	Clear	6.	23-Dec-2013	1023	81	40%
2.	10-Dec-2013			25%	7.	25-Dec-2013			Clear
3.	15-Dec-2013			Clear					
4.	19-Dec-2013			Clear					
5.	20-Dec-2013			Clear					
January 2014									
1.	20-Jan-2014	1270	100	Clear	2.	23-Jan-2014	1272	100	40%
					3.	27-Jan-2014			Clear
					4.	28-Jan-2014			Clear
February 2014									
1.	01-Feb-2014	1261	100	20%	4.	21-Feb-2014	1273	100	40%
2.	16-Feb-2014	1272	100	Clear	5.	25-Feb-2014			30%
3.	20-Feb-2014			40%					
March 2014									
1.	07-March-2014	1271	100	30%	4.	21-March-2014	1214	96	10%
2.	12-March-2014			Clear	5.	31-March-2014			Clear
3.	16-March-2014			100%					
April 2014									
1.	02-April-2014	1271	100	20%	6.	24-April-2014	1262	100	Clear
2.	06-April-2014			5%	7.	26-April-2014			Clear
3.	10-April-2014			Clear	8.	28-April-2014			Clear
4.	12-April-2014	1271	100	Clear					
5.	14-April-2014			Clear					

May 2014									
1.	03-May-2014	1246	98	Clear	6.	22-May-2014	1150	91	Clear
2.	05-May-2014			Clear	7.	27-May-2014			Clear
3.	08-May-2014			Clear	8	28-May-2014			Clear
4.	16-May-2014	1143	90	Clear					
5.	20-May-2014			3%					
June 2014									
1.	03-June-2014	1056	83	Clear	7.	28-June-2014	649	51	2%
2.	06-June-2014			Clear					
3.	09-June-2014			Clear					
4.	13-June-2014	937	74	Clear					
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6.	20-June-2014			Clear					

Snow cover depletion curve

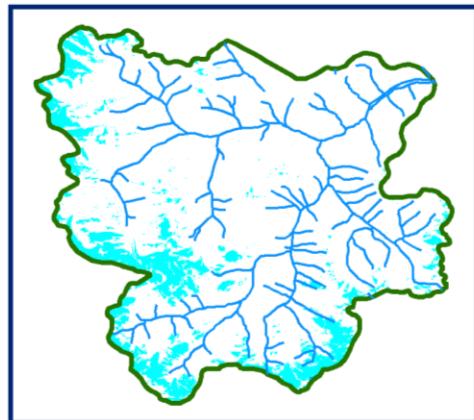


Snow cover depletion curve

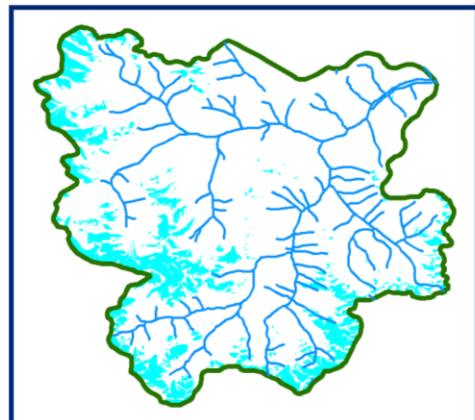


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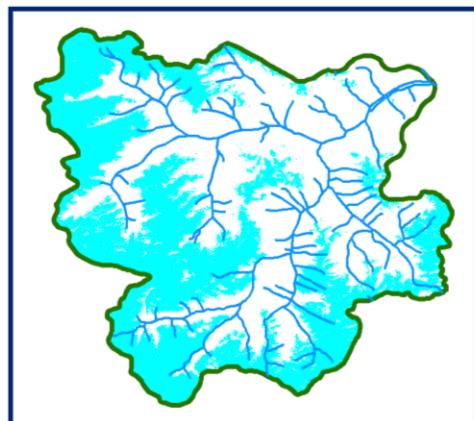
SNOW COVER MAP : PIN BASIN



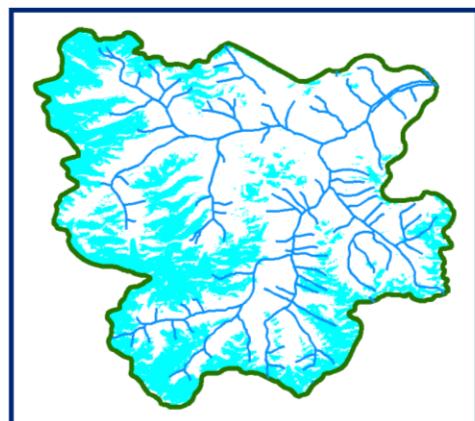
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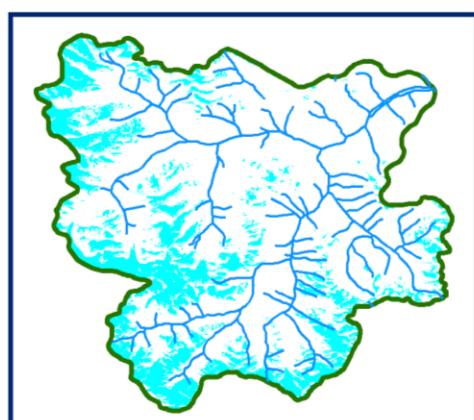
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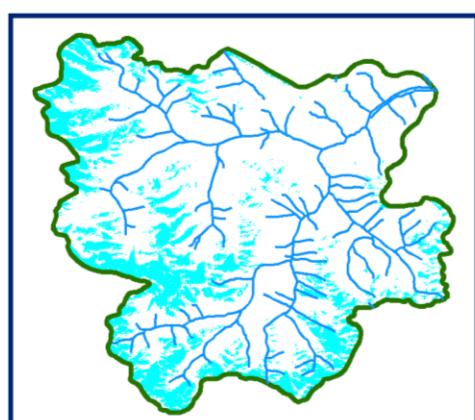
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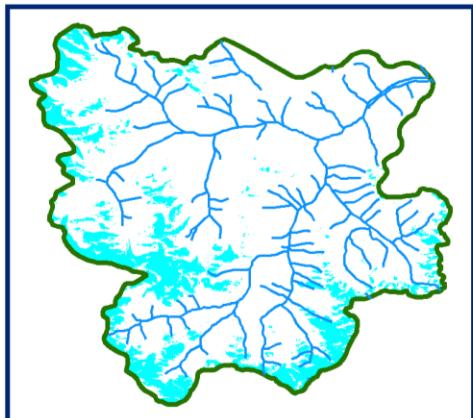
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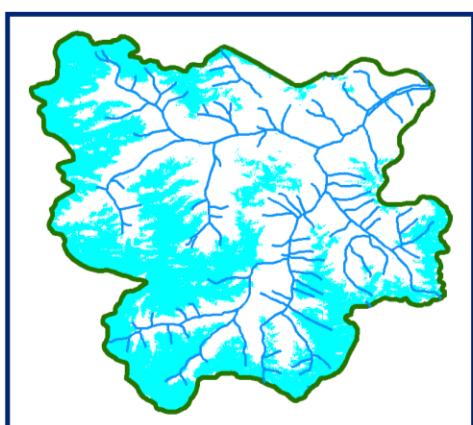
10 DAILY SNOW COVER MAP: PIN BASIN



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09 Oct 2013

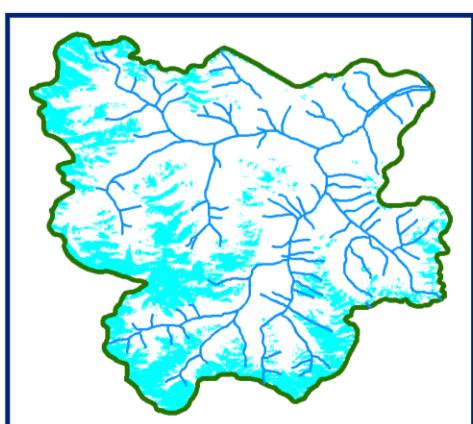


DATA USED

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18 Oct 2013



DATA USED

23 Oct 2013

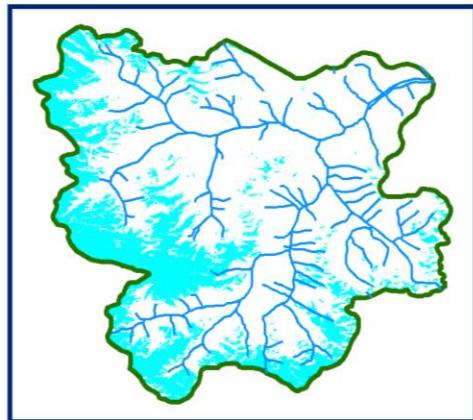
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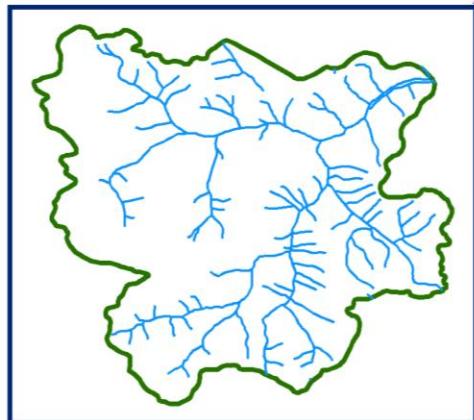
SNOW

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Kilometers

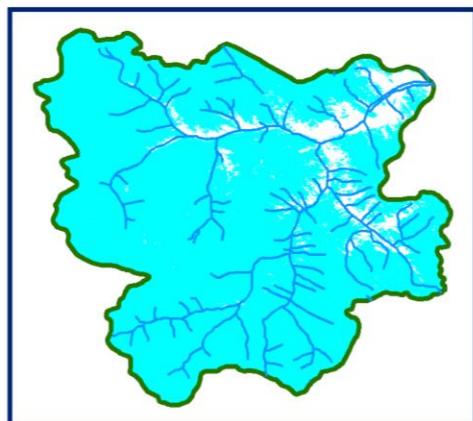
SNOW COVER MAP : PIN BASIN



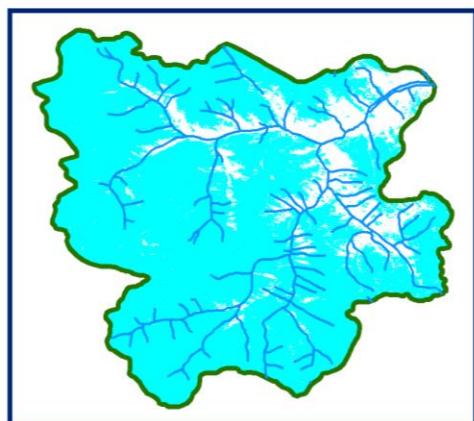
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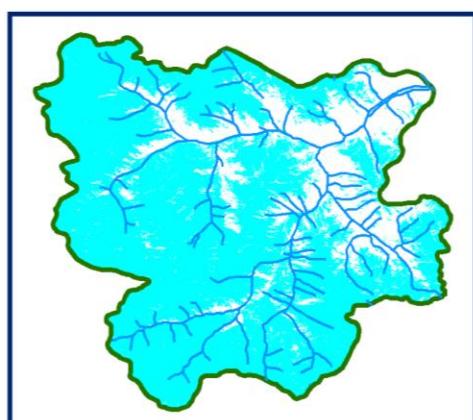
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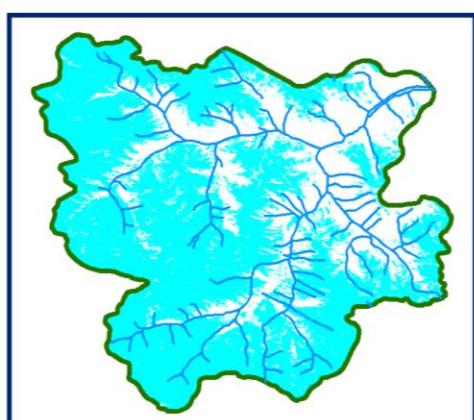
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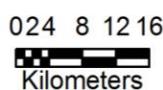
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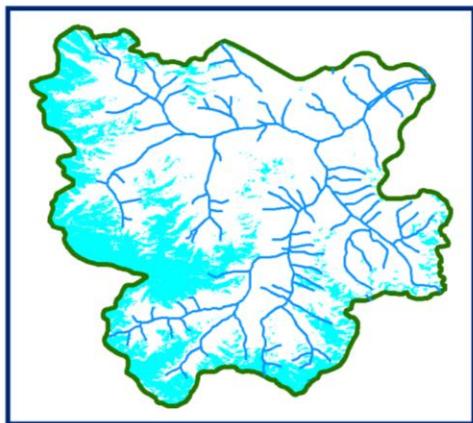


SNOW

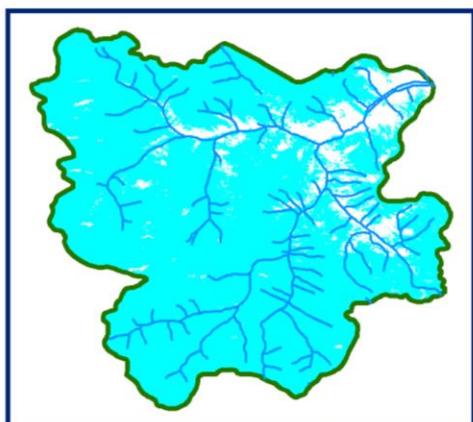


Kilometers

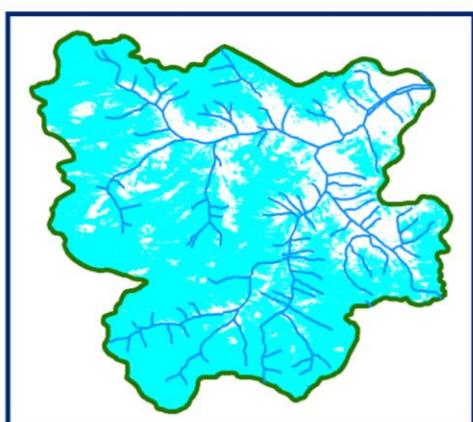
10 DAILY SNOW COVER MAP: PIN BASIN



DATA USED
02 Nov 2013



DATA USED
12 Nov 2013
16 Nov 2013
17 Nov 2013



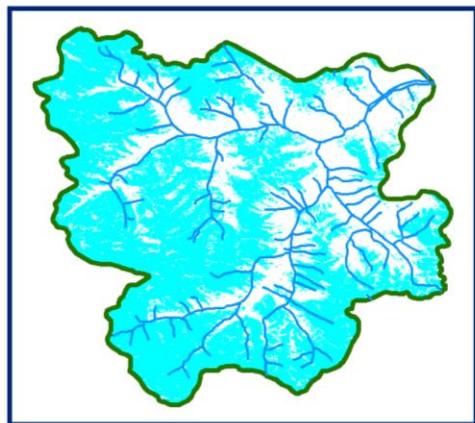
DATA USED
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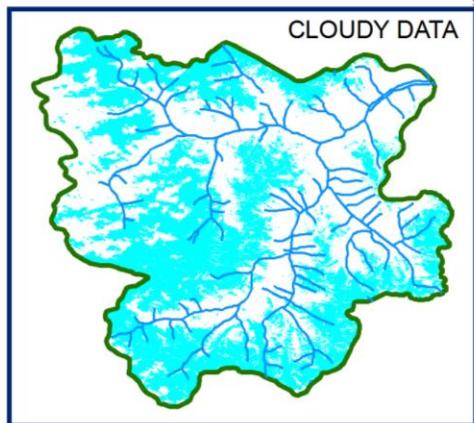
SNOW

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Kilometers

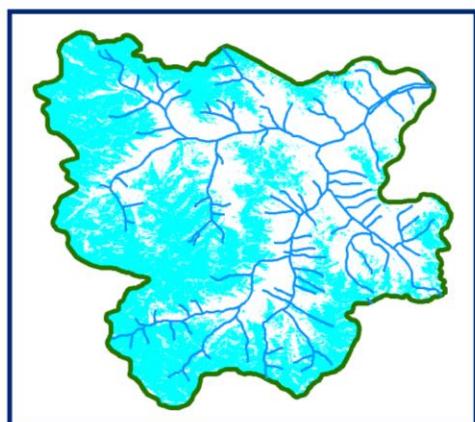
SNOW COVER MAP : PIN BASIN



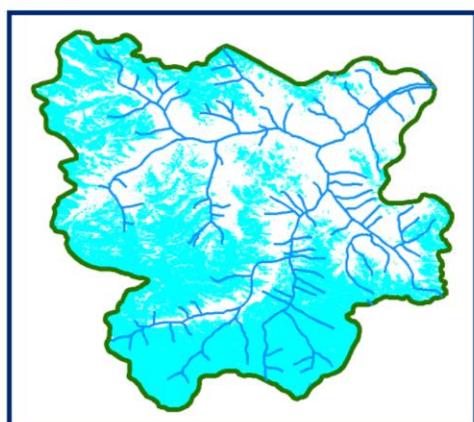
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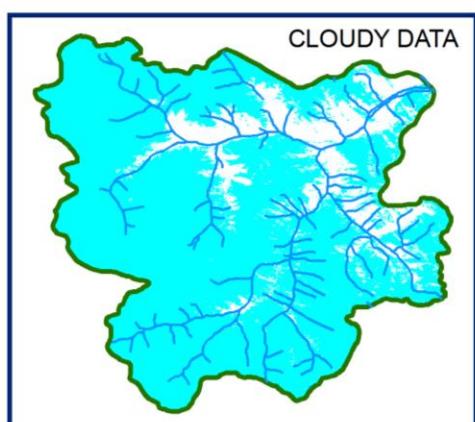
10 Dec 2013



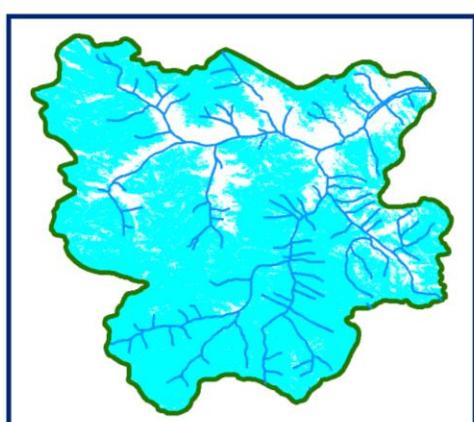
15 Dec 2013



20 Dec 2013



23 Dec 2013

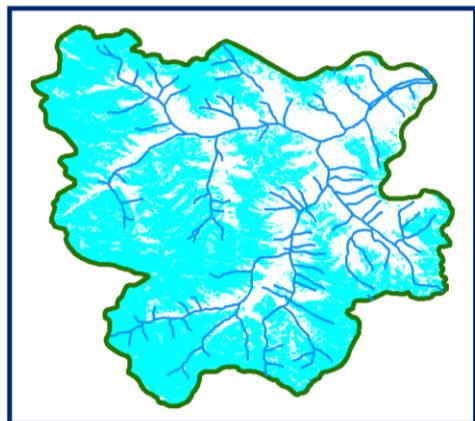


25 Dec 2013

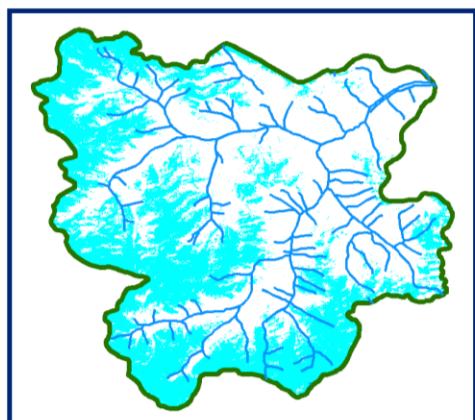


024 8 12 16
Kilometers

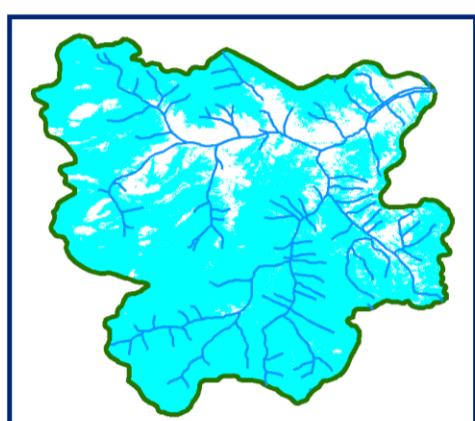
10 DAILY SNOW COVER MAP: PIN BASIN



DATA USED
01 Dec 2013
10 Dec 2013



DATA USED
15 Dec 2013
19 Dec 2013
20 Dec 2013



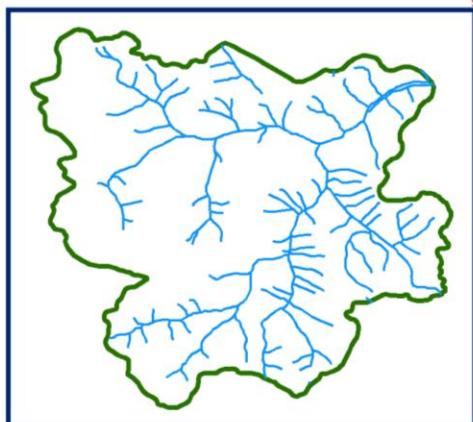
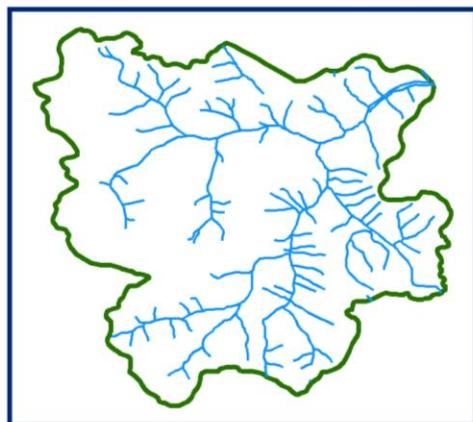
DATA USED
23 Dec 2013
25 Dec 2013



SNOW

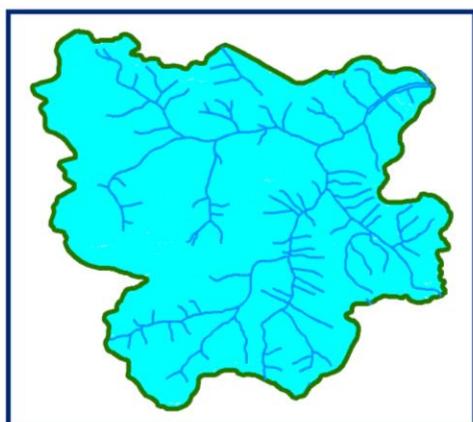
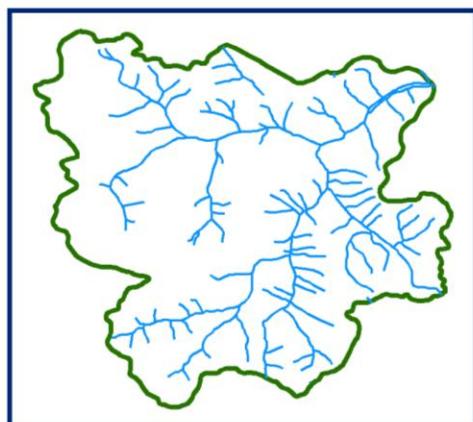
024 8 12 16
Kilometers

SNOW COVER MAP : PIN BASIN



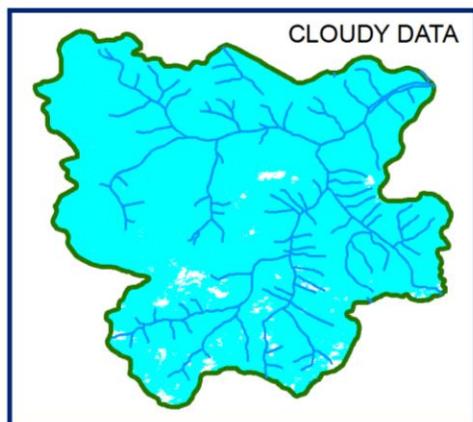
DATA NOT AVAILABLE

DATA NOT AVAILABLE

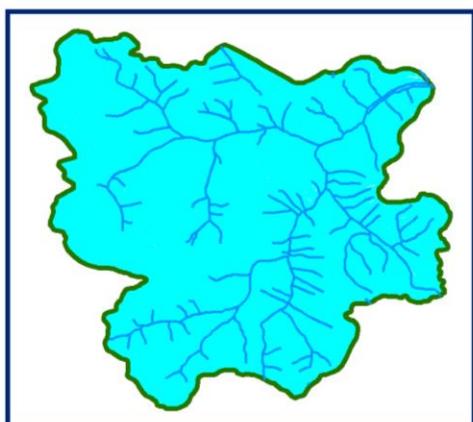


DATA NOT AVAILABLE

20 Jan 2014



23 Jan 2014



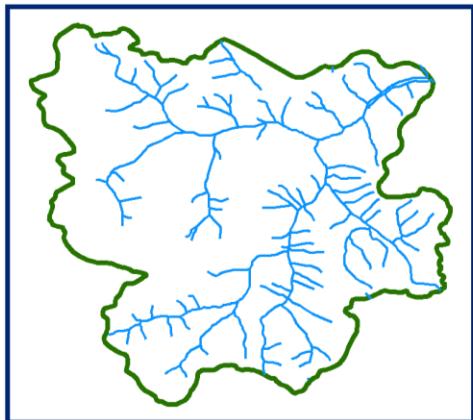
28 Jan 2014



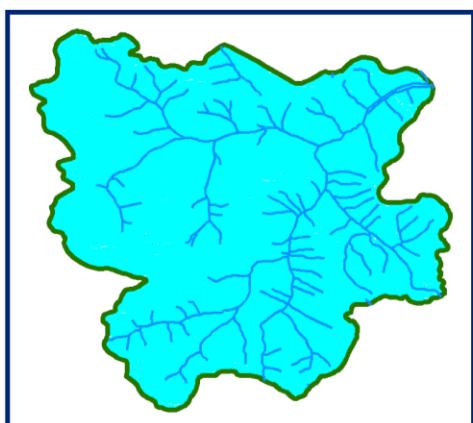
SNOW

024 8 12 16
 Kilometers

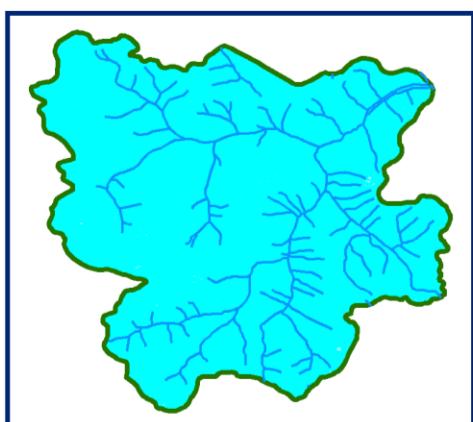
10 DAILY SNOW COVER MAP: PIN BASIN



DATA USED
DATA NOT AVAILABLE



DATA USED
20 Jan 2014



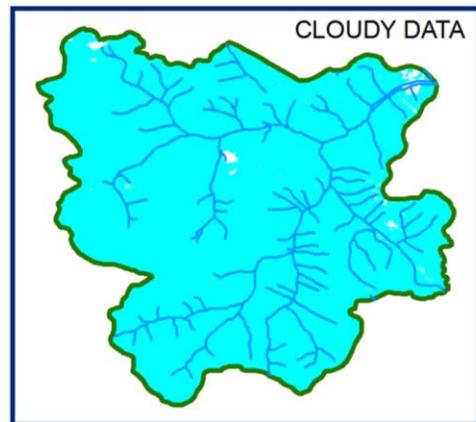
DATA USED
23 Jan 2014
27 Jan 2014
28 Jan 2014



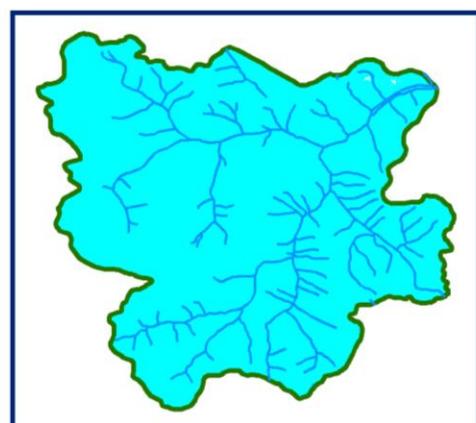
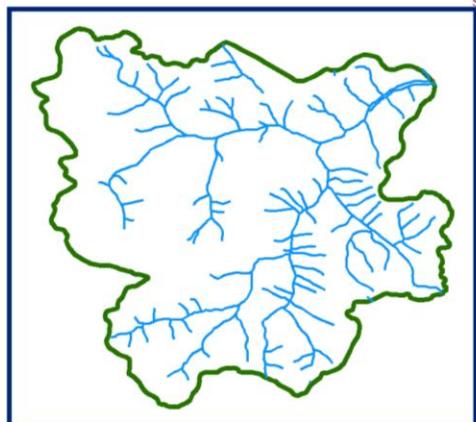
SNOW

024 8 12 16
Kilometers

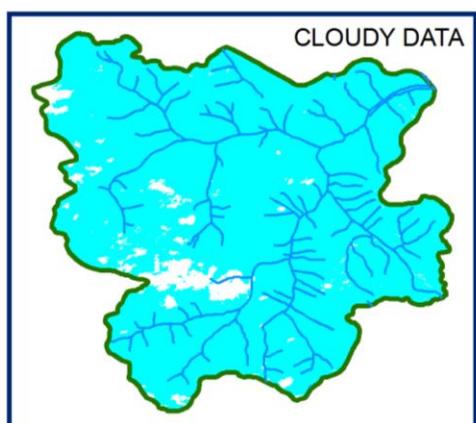
SNOW COVER MAP : PIN BASIN



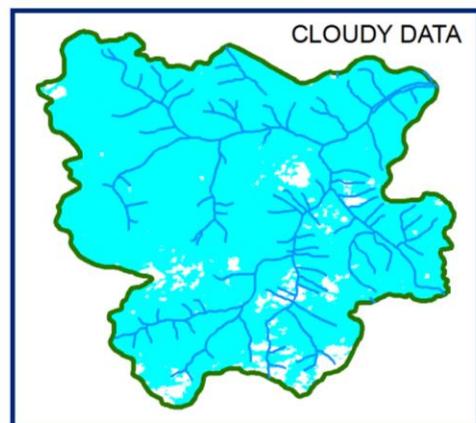
01 Feb 2014



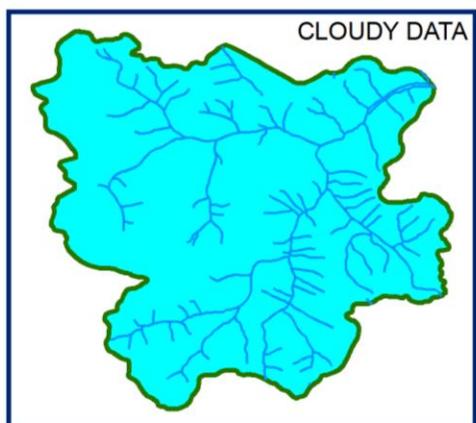
16 Feb 2014



20 Feb 2014



21 Feb 2014

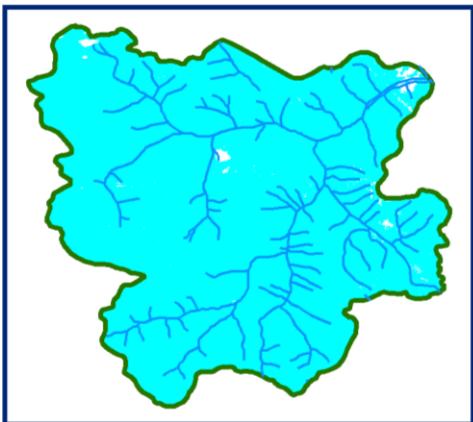


25 Feb 2014

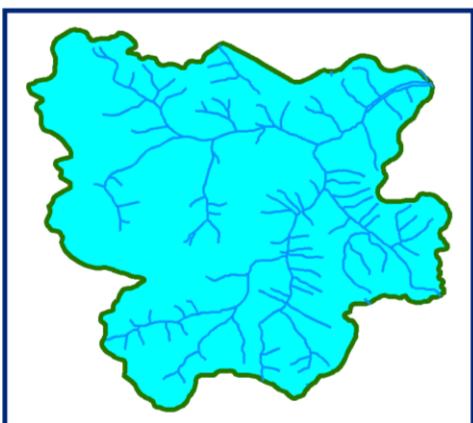


024 8 12 16
Kilometers

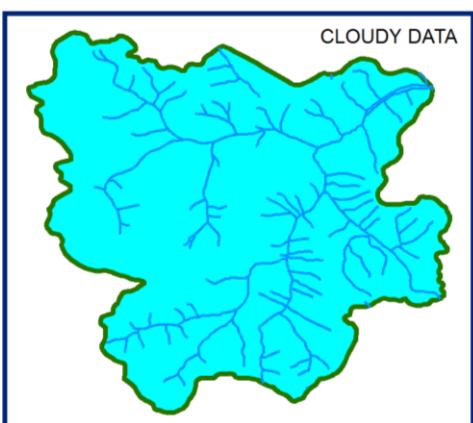
10 DAILY SNOW COVER MAP: PIN BASIN



DATA USED
01 Feb 2014



DATA USED
16 Feb 2014
20 Feb 2014



DATA USED
21 Feb 2014
25 Feb 2014

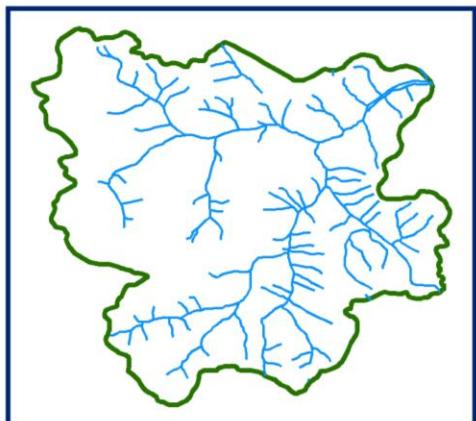


SNOW

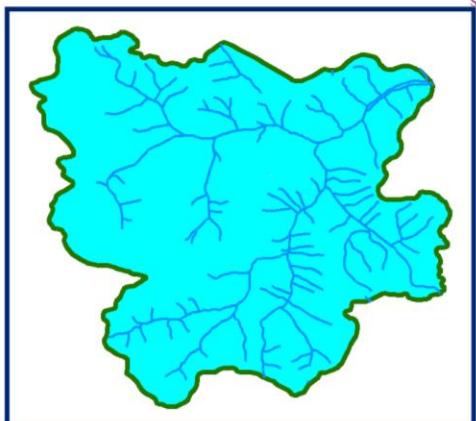
024 8 12 16
Kilometers

SNOW COVER MAP

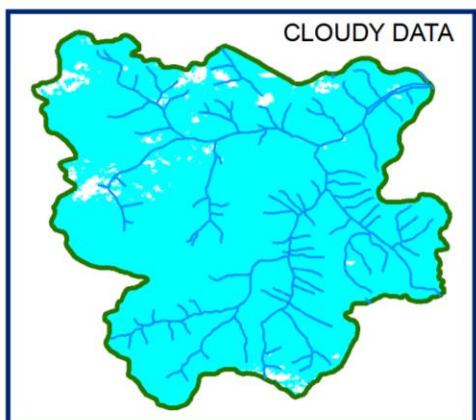
: PIN BASIN



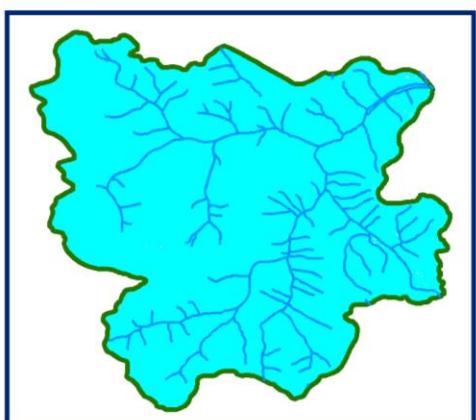
DATA NOT AVAILABLE



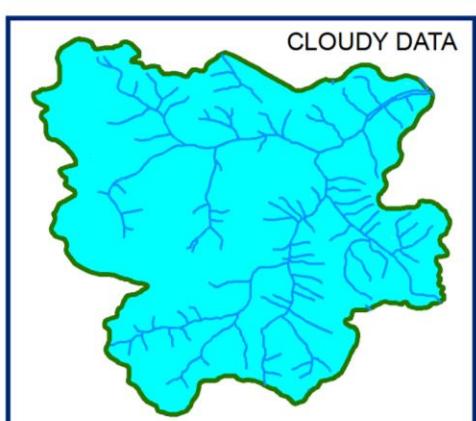
07 March 2014



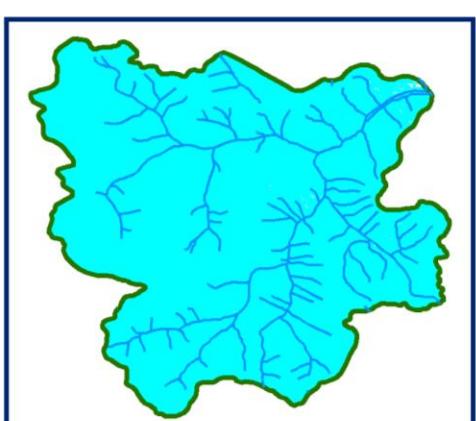
12 March 2014



16 March 2014



21 March 2014

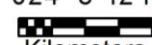


31 March 2014



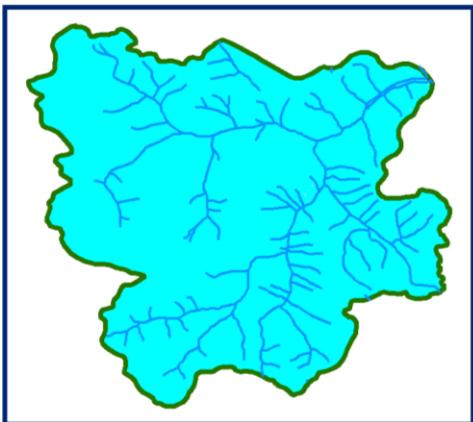
SNOW

024 8 12 16

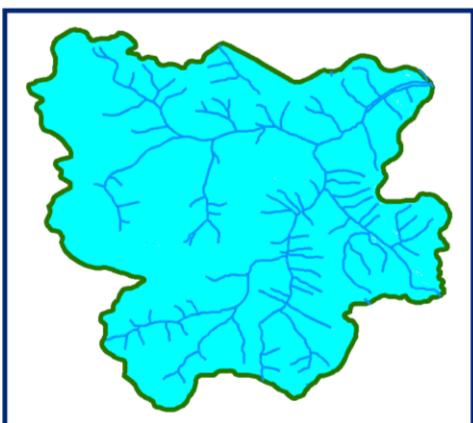


Kilometers

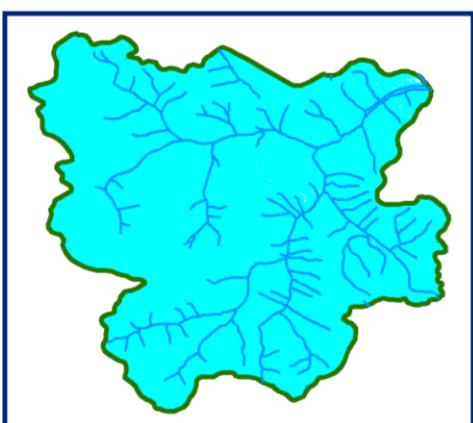
10 DAILY SNOW COVER MAP: PIN BASIN



DATA USED
07 March 2014



DATA USED
12 March 2014
16 March 2014



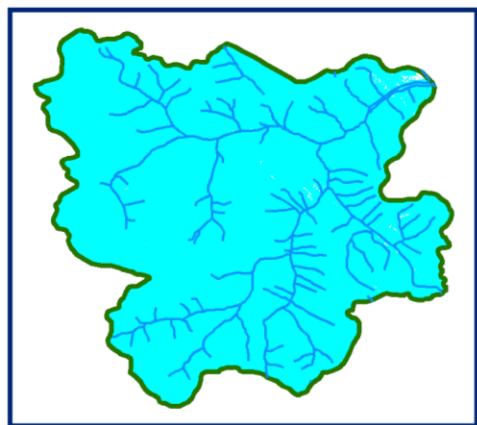
DATA USED
21 March 2014
31 March 2014



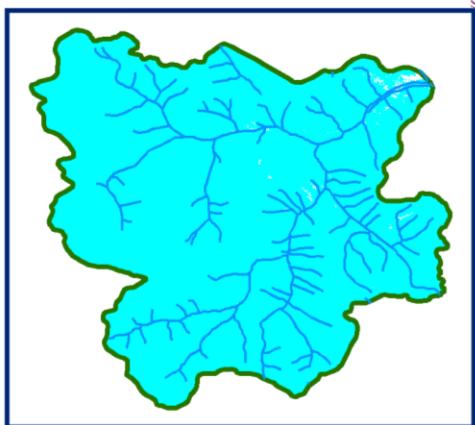
SNOW

024 8 12 16
Kilometers

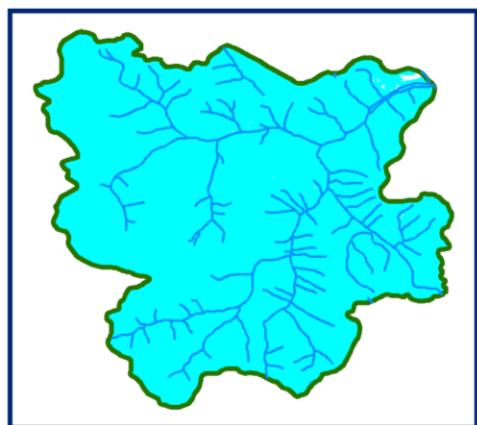
SNOW COVER MAP : PIN BASIN



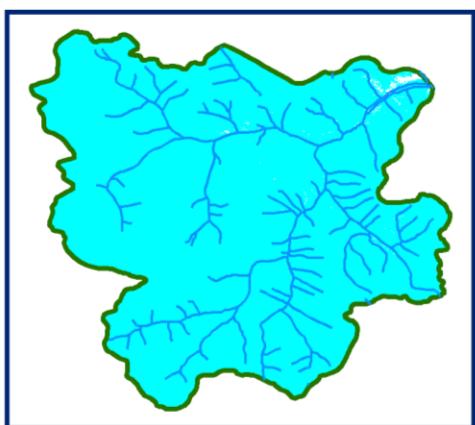
05 April 2014



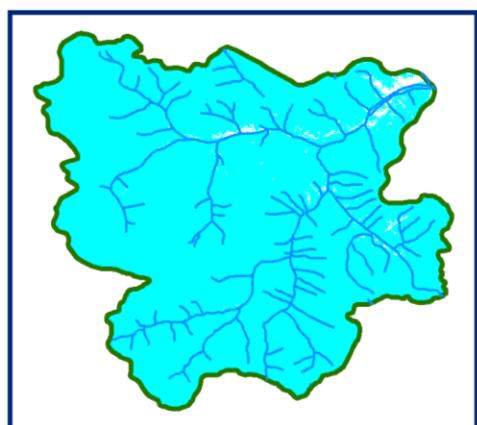
10 April 2014



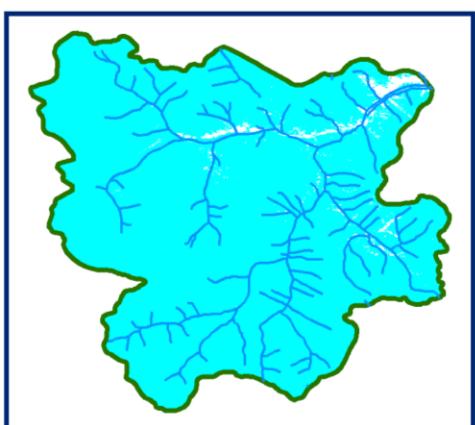
12 April 2014



14 April 2014



24 April 2014



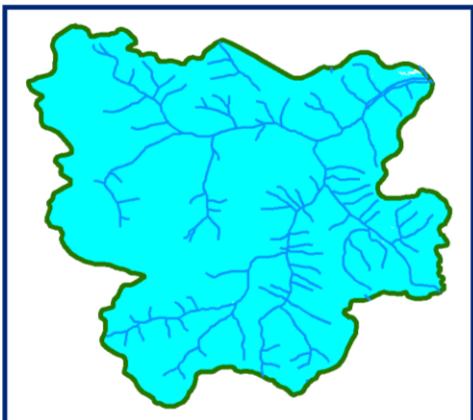
28 April 2014



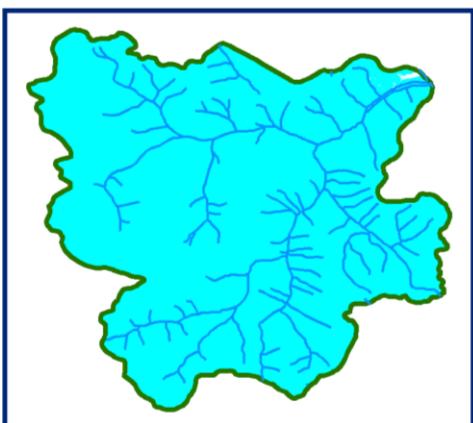
SNOW

024 8 12 16
 Kilometers

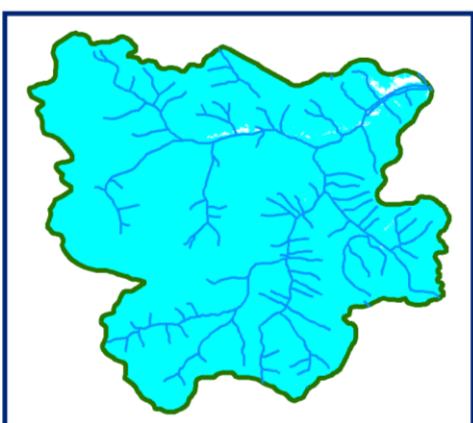
10 DAILY SNOW COVER MAP: PIN BASIN



DATA USED
02 April 2014
06 April 2014
10 April 2014



DATA USED
12 April 2014
14 April 2014



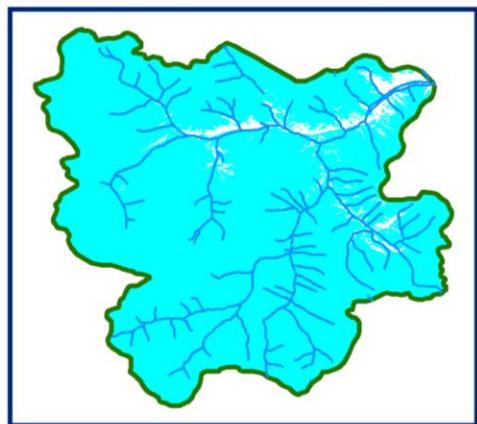
DATA USED
24 April 2014
26 April 2014
28 April 2014



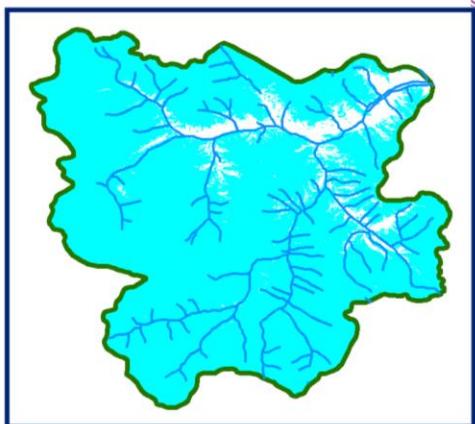
SNOW

024 8 12 16
Kilometers

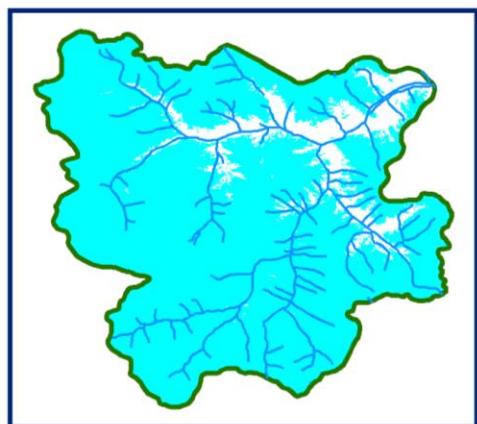
SNOW COVER MAP : PIN BASIN



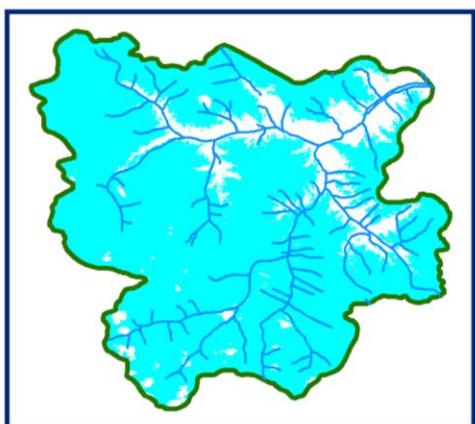
03 May 2014



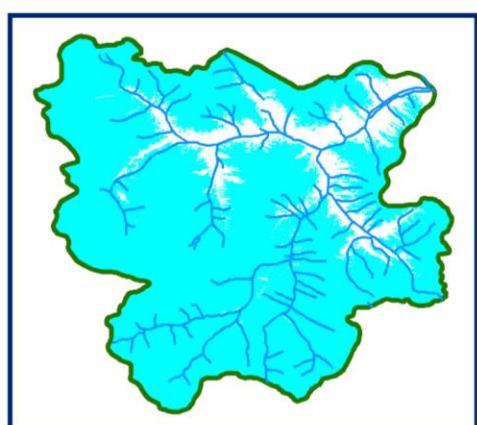
08 May 2014



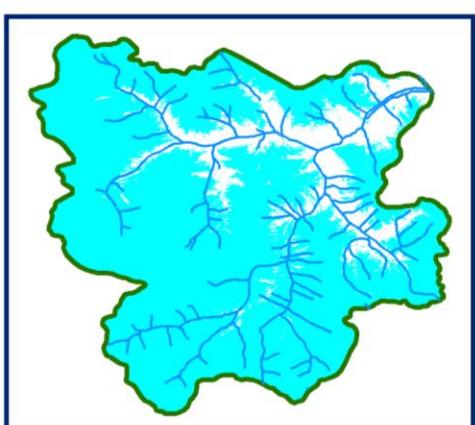
16 May 2014



20 May 2014



22 May 2014



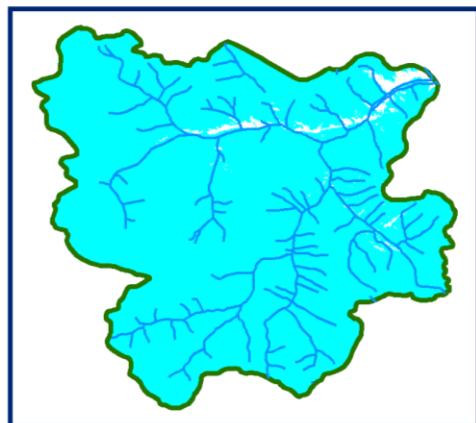
28 May 2014



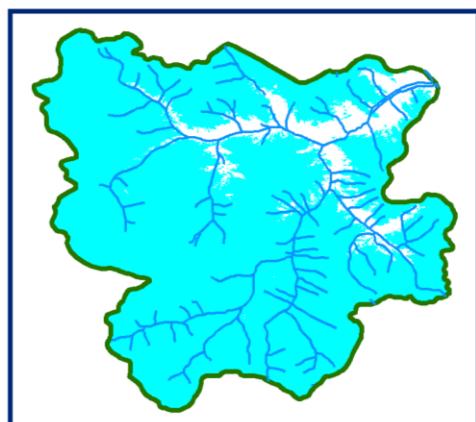
SNOW

024 8 12 16
Kilometers

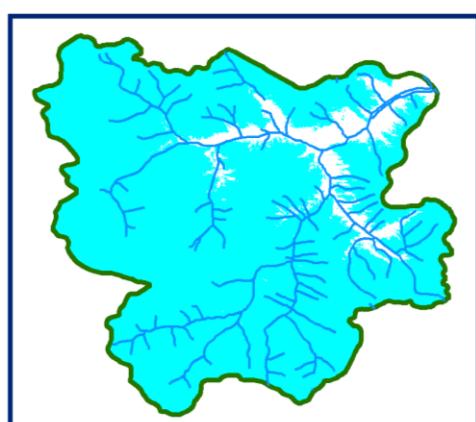
10 DAILY SNOW COVER MAP: PIN BASIN



DATA USED
03 May 2014
05 May 2014
08 May 2014



DATA USED
16 May 2014
20 May 2014



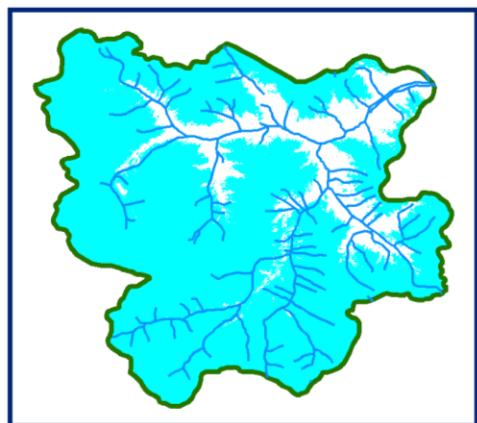
DATA USED
22 May 2014
27 May 2014
28 May 2014



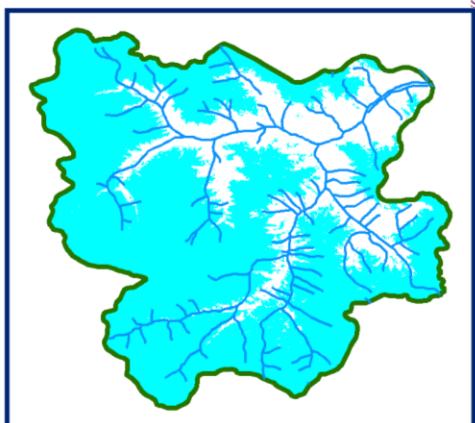
SNOW

024 8 12 16
Kilometers

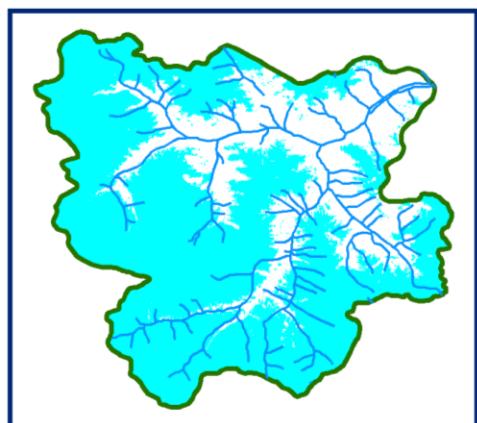
SNOW COVER MAP : PIN BASIN



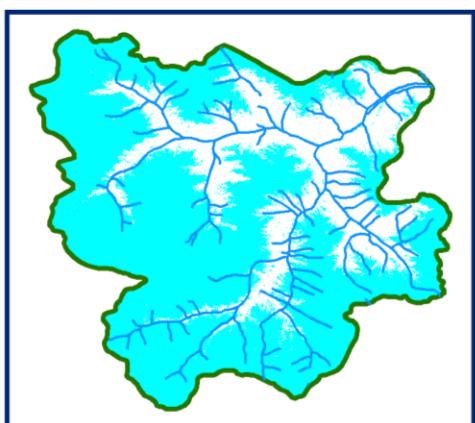
03 June 2014



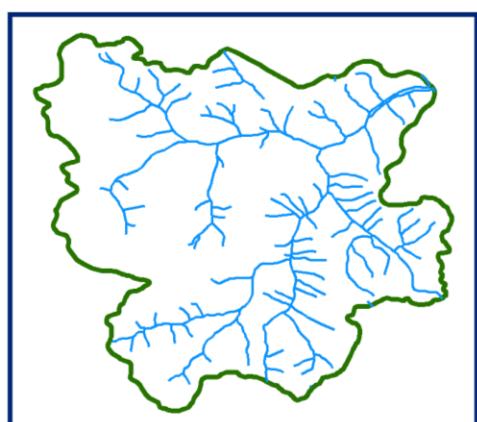
09 June 2014



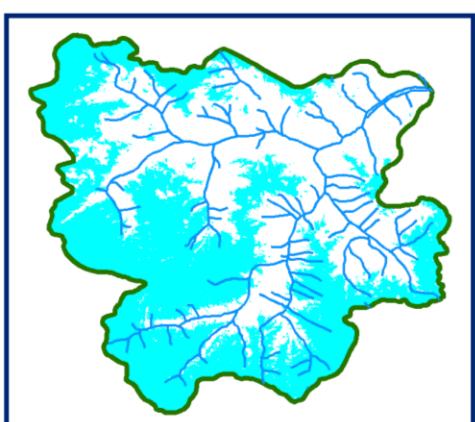
13 June 2014



20 June 2014



DATA NOT AVAILABLE



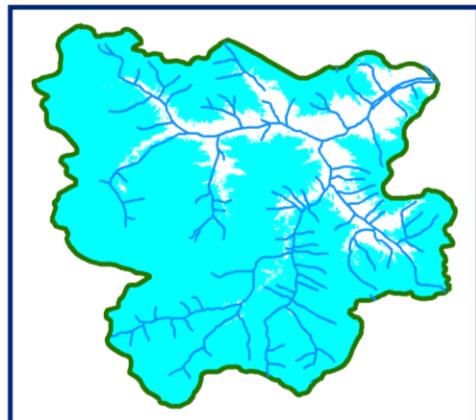
28 June 2014

024 8 12 16

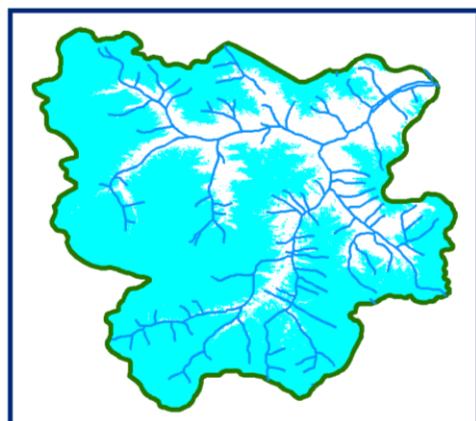
SNOW

Kilometers

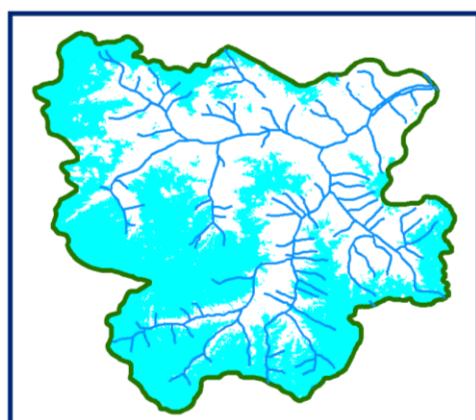
10 DAILY SNOW COVER MAP: PIN BASIN



DATA USED
03 June 2014
06 June 2014
09 June 2014



DATA USED
13 June 2014
16 June 2014
20 June 2014



DATA USED
28 June 2014



SNOW

024 8 12 16
Kilometers

SPITI BASIN

AREAL EXTENT OF SNOW (5 DAILY)

BASIN NAME: SPITI

BASIN AREA: 8871 sq km

S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover
October 2013									
1.	04-10-2013	581	7	2%	5.	18-10-2013	1311	15	Clear
2.	09-10-2013	536	6	Clear	6.	23-10-2013	1045	12	Clear
3.	14-10-2013	2295	26	Clear	7.	24-10-2013	940	11	Clear
4.	16-10-2013	1786	20	Clear					
November 2013									
1.	02-11-2013	943	11	Clear	5.	17-11-2013	3805	43	Clear
2.	12-11-2013	5225	59	Clear	6.	21-11-2013	3033	34	Clear
3.	16-11-2013	4111	46	Clear	7.	26-11-2013	2352	27	Clear
4.	16-11-2013	4150	47	Clear					
December 2013									
1.	01-12-2013	1967	22	Clear	5.	20-12-2013	1345	15	Clear
2.	10-12-2013	1816	20	10%	6.	23-12-2013	3777	43	20%
3.	15-12-2013	1654	19	Clear	7.	25-12-2013	2440	27	Clear
4.	19-12-2013	1116	13	Clear					
January 2014									
1.	20-01-2014	7980	90	Clear	3.	27-01-2014	7632	86	Clear
2.	23-01-2014	8231	93	Clear	4.	28-01-2014	7715	87	Clear
February 2014									
1.	01-02-2014	6075	68	50%	4.	21-02-2014	8229	93	Clear
2.	16-02-2014	8780	99	Clear	5.	25-02-2014	8217	93	Clear
3.	20-02-2014	8399	95	10%	6.	25-02-2014	8234	93	Clear
March 2014									
1.	07-03-2014	8196	92	Clear	4.	17-03-2014	8761	99	100%
2.	12-03-2014	7435	84	90%	5.	21-03-2014	8135	92	Clear
3.	16-03-2014	7741	87	Clear	6.	31-03-2014	7505	85	Clear
April 2014									
1.	02-04-2014	7686	87	Clear	6.	14-04-2014	6625	75	Clear
2.	05-04-2014	7111	80	Clear	7.	24-04-2014	6068	68	Clear
3.	09-04-2014	6998	79	Clear	8.	26-04-2014	6409	72	Clear
4.	10-04-2014	6790	77	Clear	9.	28-04-2014	6040	68	Clear
5.	12-04-2014	7076	80	Clear					
May 2014									
1.	01-05-2014	5959	67	Clear	7.	20-05-2014	4108	46	Clear

2.	03-05-2014	5528	62	Clear	8.	22-05-2014	4326	49	Clear
3.	04-05-2014	4893	55	20%	9.	25-05-2014	4750	54	Clear
4.	08-05-2014	4801	54	5%	10.	27-05-2014	4225	48	Clear
5.	16-05-2014	4686	53	Clear	11.	28-05-2014	4061	46	Clear
6.	18-05-2014	3753	42	5%					

June 2014

1.	03-06-2014	4023	45	Clear	6.	13-06-2014	2592	29	40%
2.	04-06-2014	3812	43	Clear	7.	16-06-2014	2904	33	Clear
3.	06-06-2014	3706	42	Clear	8.	20-06-2014	3194	36	Clear
4.	09-06-2014	3071	35	20%	9.	28-06-2014	1824	21	20%
5.	11-06-2014	3284	37	3%					

AREAL EXTENT OF SNOW (10 DAILY)

BASIN NAME: SPITI

BASIN AREA: 8871 sq km

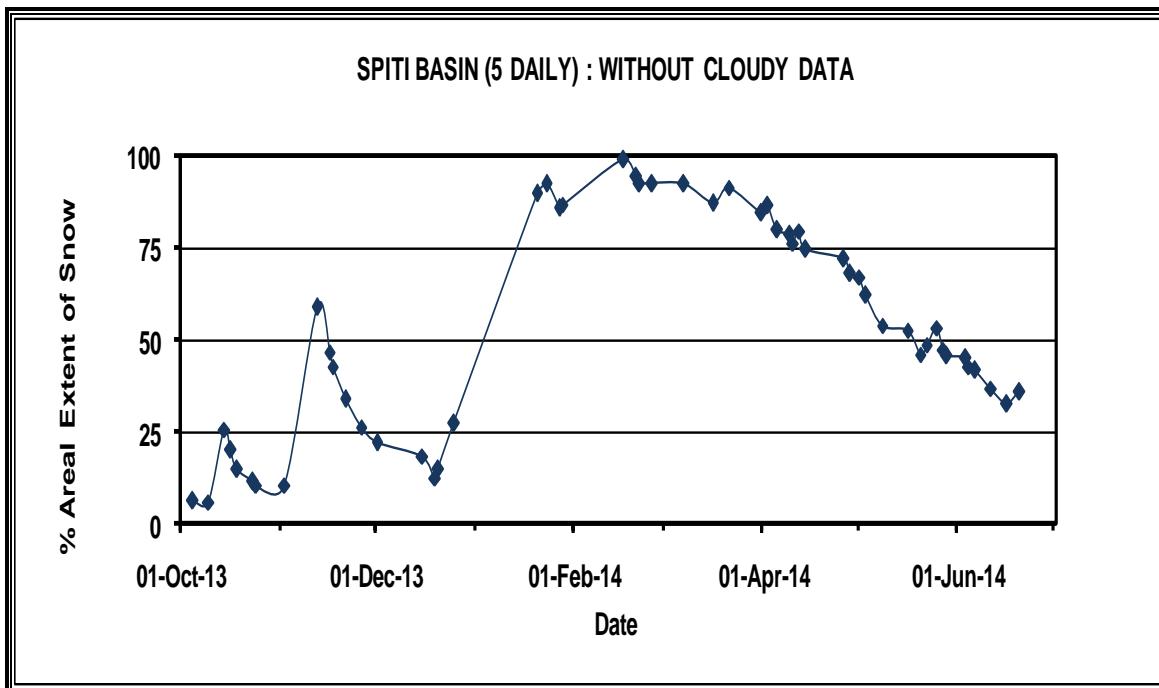
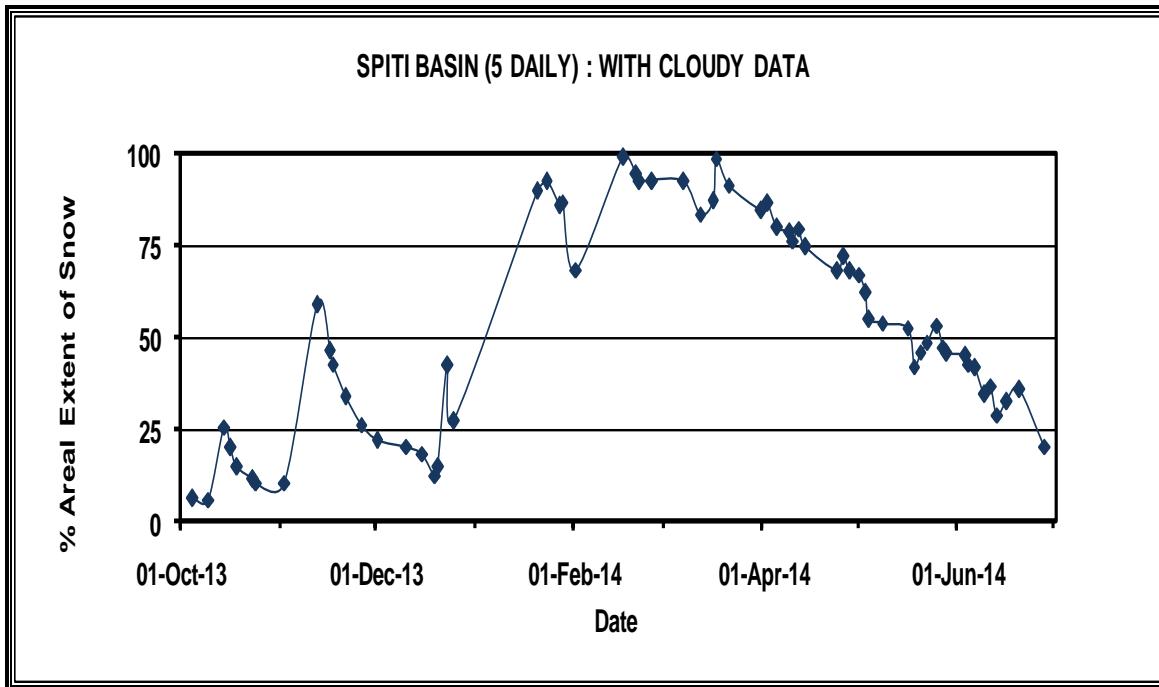
S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud cover
October 2013									
1.	04-Oct-2013	697	8	2%	6.	23-Oct-2013	1552	17	Clear
2.	09-Oct-2013			Clear	7.	24-Oct-2013			Clear
3.	14-Oct-2013			Clear					
4.	16-Oct-2013			Clear					
5.	18-Oct-2013			Clear					
November 2013									
1.	02-Nov-2013	941	11	Clear	5.	21-Nov-2013	3015	34	Clear
2.	12-Nov-2013			Clear	6.	26-Nov-2013			Clear
3.	16-Nov-2013			Clear					
4.	17-Nov-2013			Clear					
December 2013									
1.	01-Dec-2013	2198	25	Clear	6.	23-Dec-2013	3181	36	20%
2.	10-Dec-2013			10%	7.	25-Dec-2013			Clear
3.	15-Dec-2013			Clear					
4.	19-Dec-2013			Clear					
5.	20-Dec-2013			Clear					
January 2014									
1.	20-Jan-2014	3181	36	Clear	2.	23-Jan-2014	8428	95	Clear
					3.	27-Jan-2014			Clear
					4.	28-Jan-2014			Clear
February 2014									
1.	01-Feb-2014	6077	69	50%	4.	21-Feb-2014	8528	96	Clear
2.	16-Feb-2014	8830	100	Clear	5.	25-Feb-2014			Clear
3.	20-Feb-2014			10%					
March 2014									
1.	07-March-2014	8195	92	Clear	3.	21-March-2014	8200	92	Clear
2.	16-March-2014	7742	87	Clear	4.	31-March-2014			Clear
April 2014									
1.	02-April-2014	7774	88	Clear	6.	24-April-2014	7276	82	Clear
2.	05-April-2014			Clear	7.	26-April-2014			Clear
3.	09-April-2014			Clear	8.	28-April-2014			Clear
4.	12-April-2014	7276	82	Clear					
5.	14-April-2014			Clear					
May 2014									
1.	01-May-2014	6069	68	Clear	7.	22-May-2014	4944	56	Clear

2.	03-May-2014			Clear	8.	25-May-2014			Clear
3.	08-May-2014			5%	9	28-May-2014			Clear
4.	16-May-2014			Clear					
5.	18-May-2014			5%					
6.	20-May-2014			Clear					

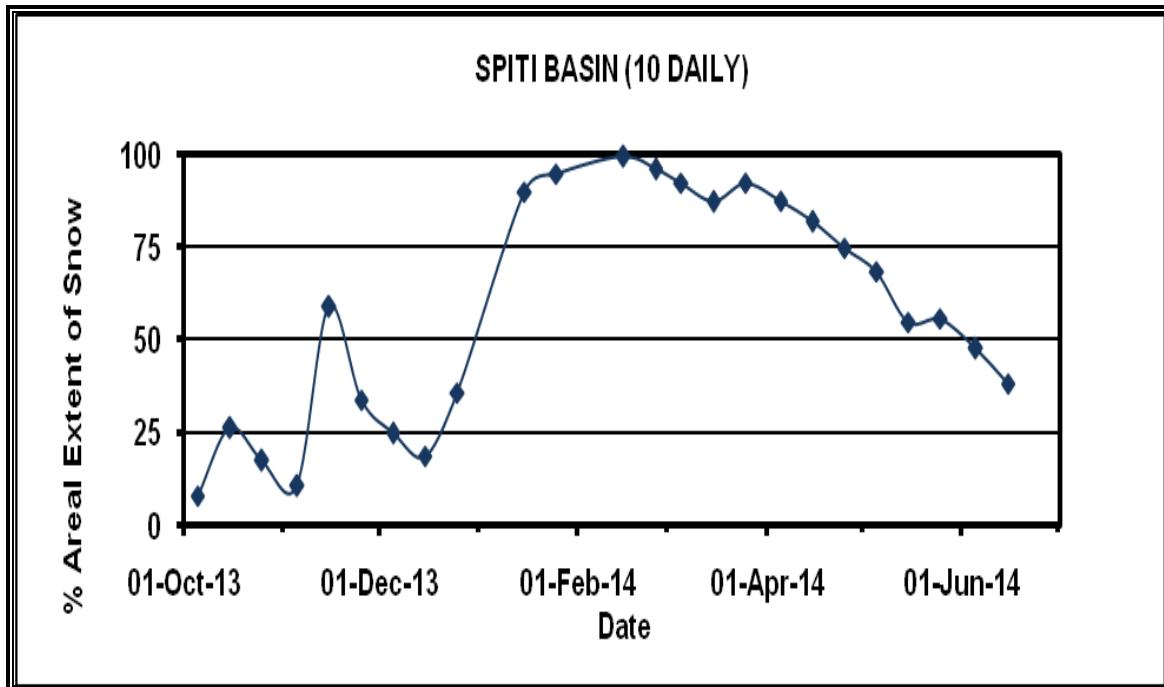
June 2014

1.	03-June-2014			Clear	7.	28-June-2014	1825	21	20%
2.	04-June-2014			Clear					
3.	06-June-2014			Clear					
4.	11-June-2014			Clear					
5.	16-June-2014			Clear					
6.	20-June-2014			Clear					

Snow cover depletion curve



Snow cover depletion curve

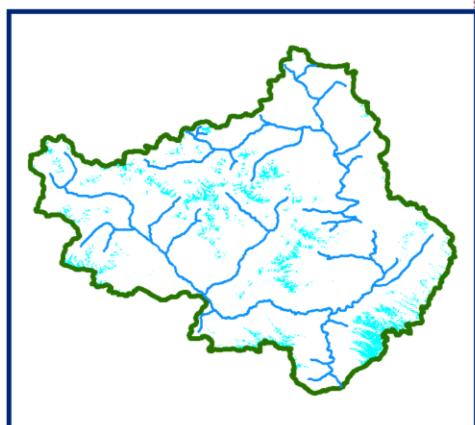


SNOW COVER MAP

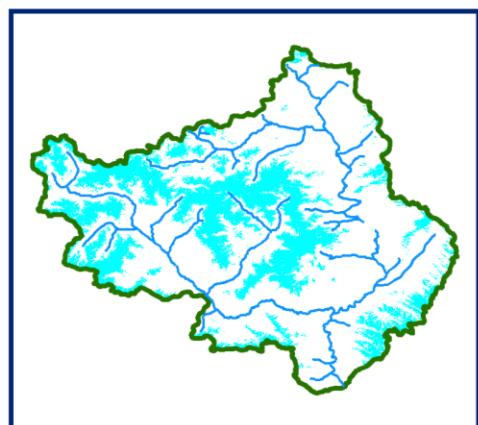
SNOW COVER MAP : SPITI BASIN



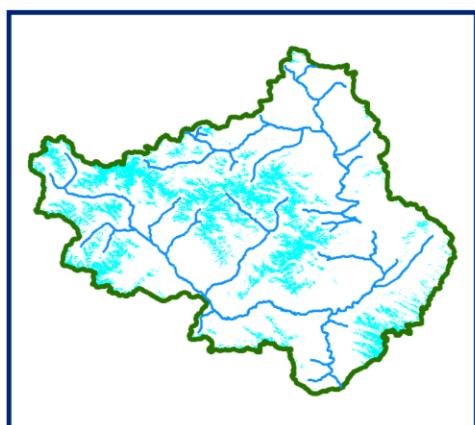
04 Oct 2013



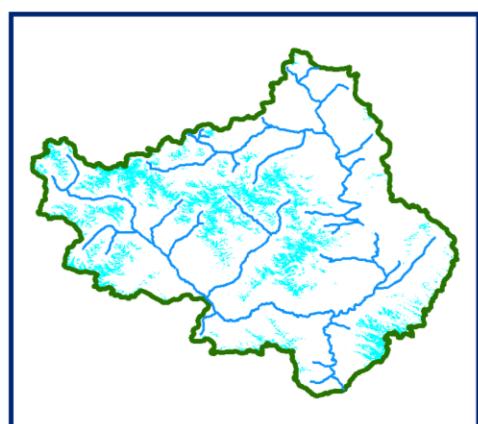
09 Oct 2013



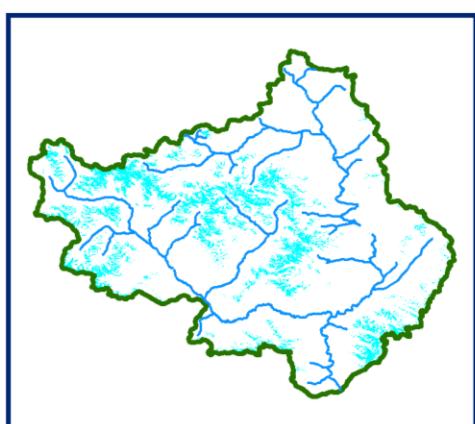
14 Oct 2013



18 Oct 2013



23 Oct 2013



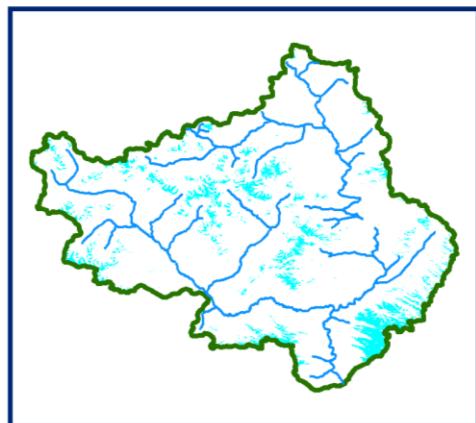
24 Oct 2013



SNOW

0.9 182736
 Kilometers

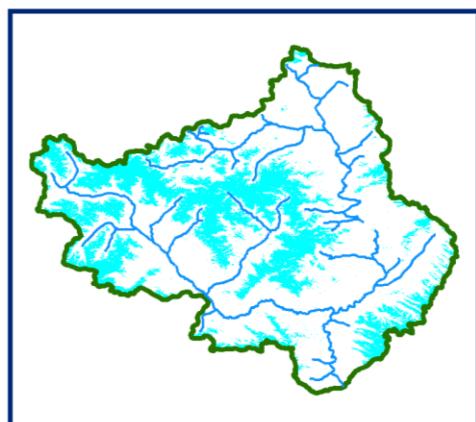
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED

04 Oct 2013

09 Oct 2013

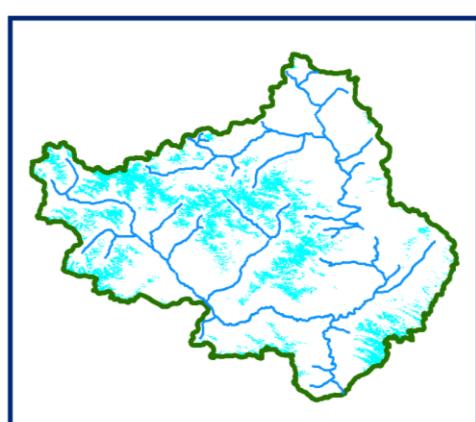


DATA USED

14 Oct 2013

16 Oct 2013

18 Oct 2013



DATA USED

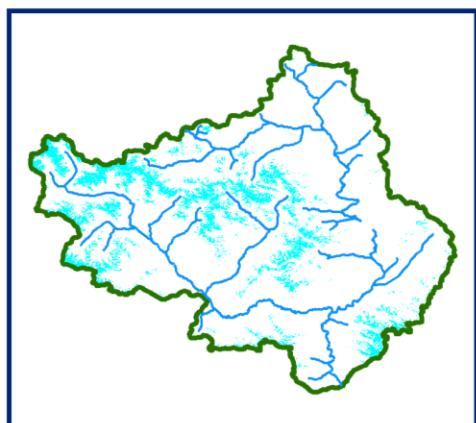
23 Oct 2013

24 Oct 2013

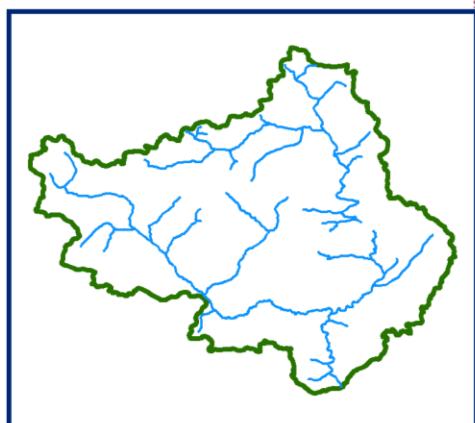


0.9 182736
Kilometers

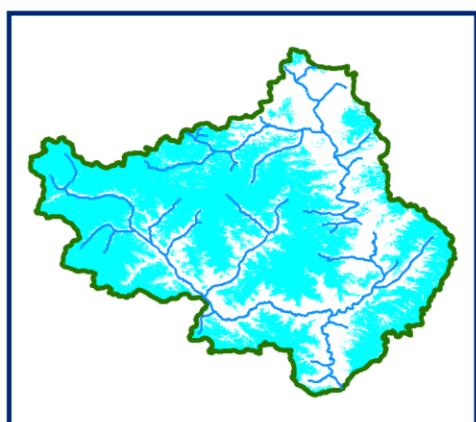
SNOW COVER MAP : SPITI BASIN



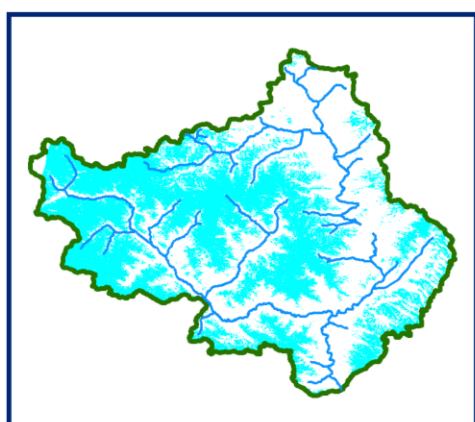
02 Nov 2013



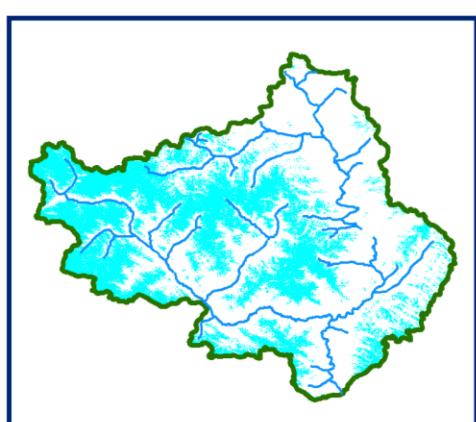
DATA NOT AVAILABLE



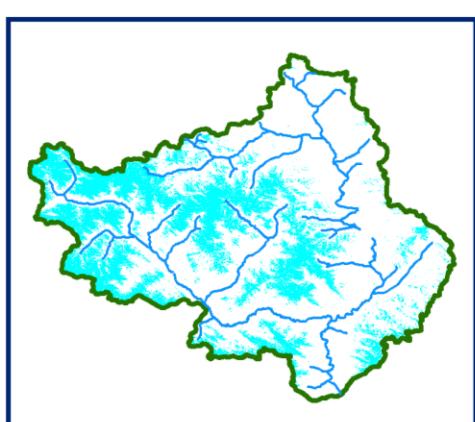
12 Nov 2013



17 Nov 2013



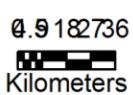
21 Nov 2013



26 Nov 2013



SNOW

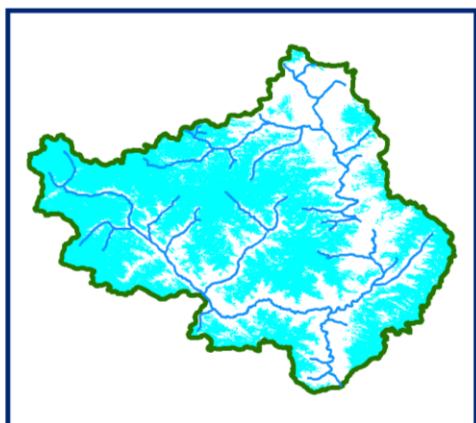


Kilometers

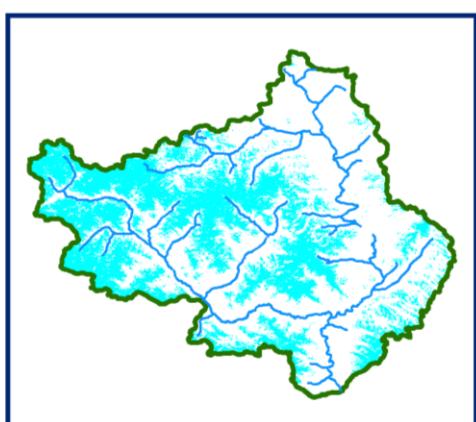
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED
02 Nov 2013



DATA USED
12 Nov 2013
16 Nov 2013
17 Nov 2013



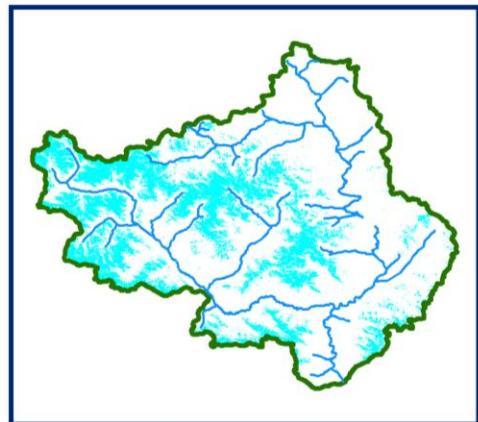
DATA USED
21 Nov 2013
26 Nov 2013



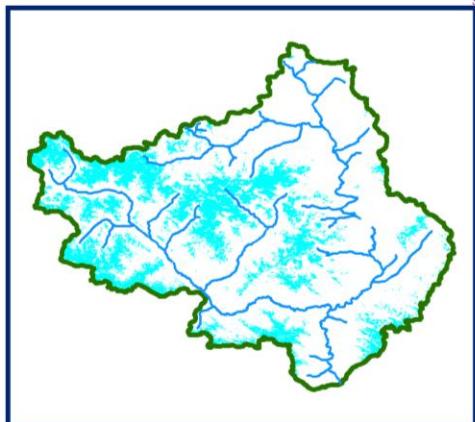
SNOW

0.9 182736
Kilometers

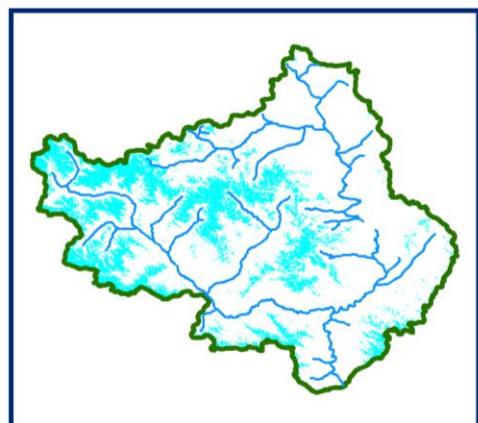
SNOW COVER MAP : SPITI BASIN



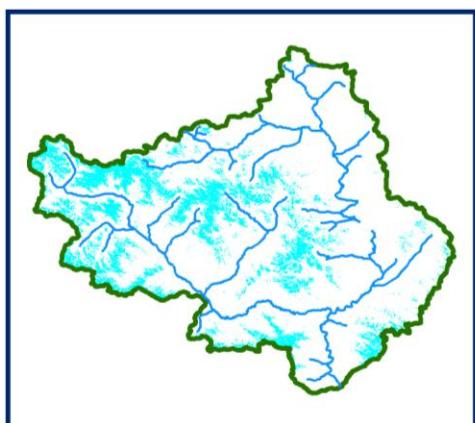
01 Dec 2013



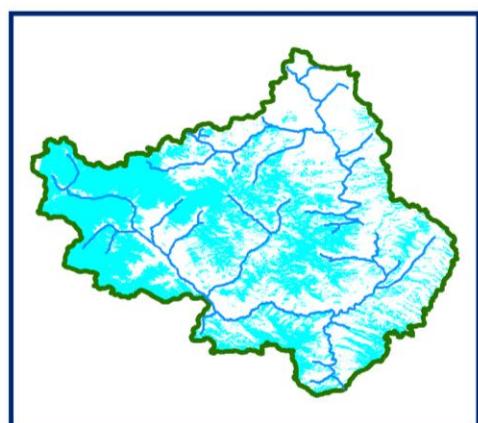
10 Dec 2013



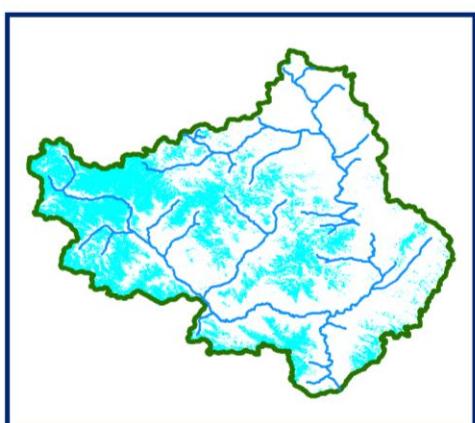
15 Dec 2013



20 Dec 2013



23 Dec 2013



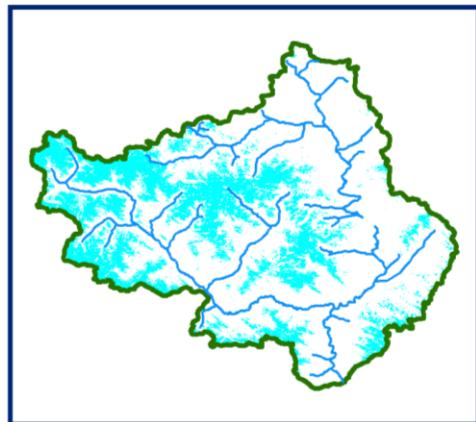
25 Dec 2013



SNOW

0.9 182736
Kilometers

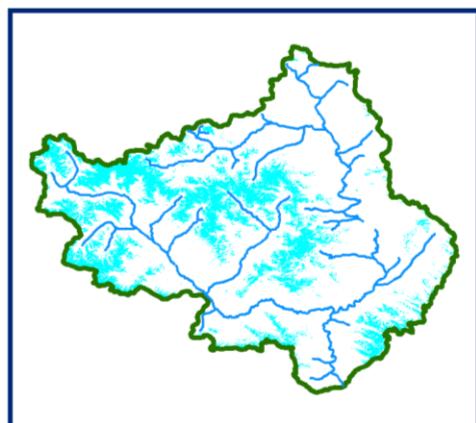
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED

01 Dec 2013

10 Dec 2013

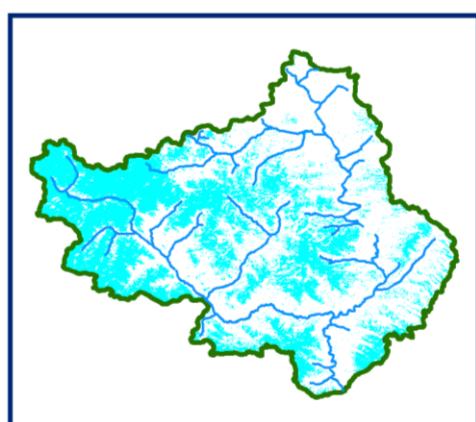


DATA USED

15 Dec 2013

19 Dec 2013

20 Dec 2013



DATA USED

23 Dec 2013

25 Dec 2013

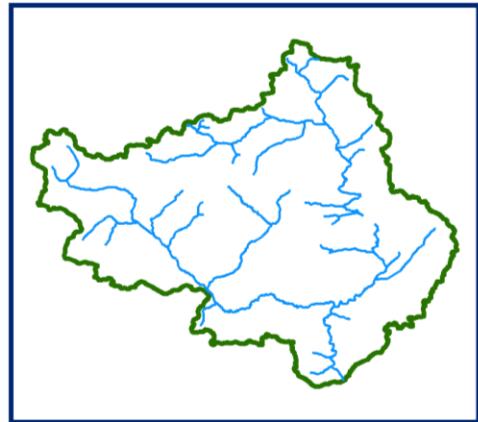


SNOW

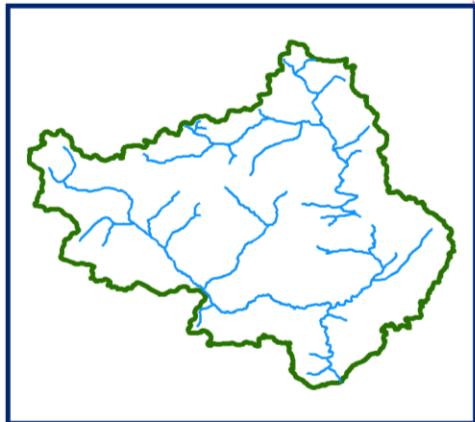
0.9 182736



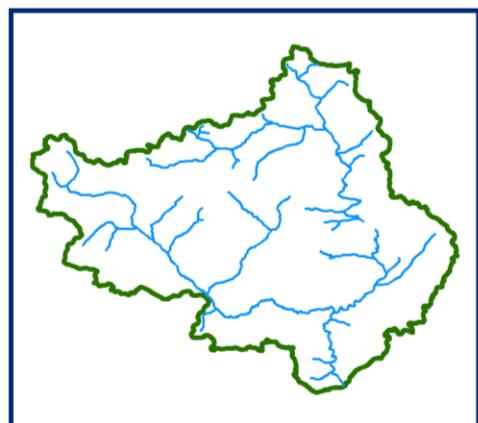
SNOW COVER MAP : SPITI BASIN



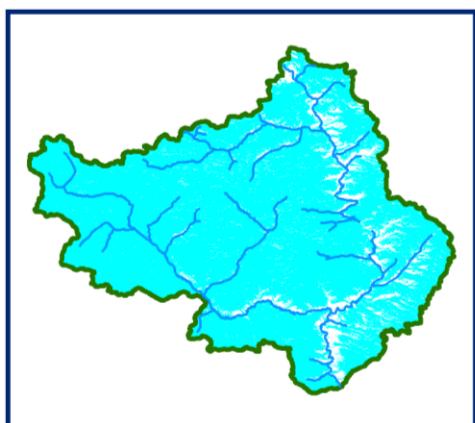
DATA NOT AVAILABLE



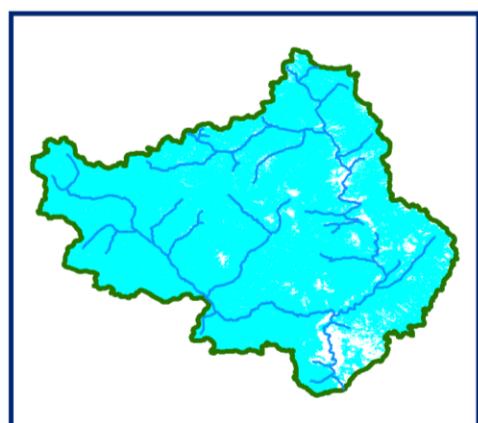
DATA NOT AVAILABLE



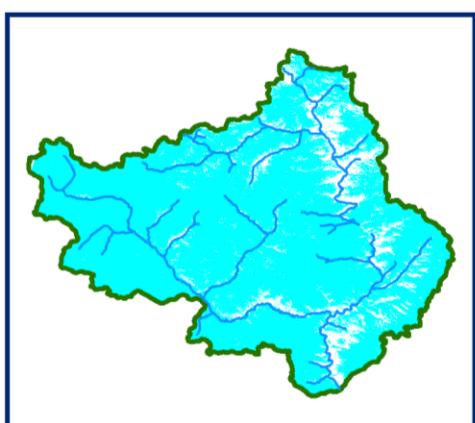
DATA NOT AVAILABLE



20 Jan 2014



23 Jan 2014



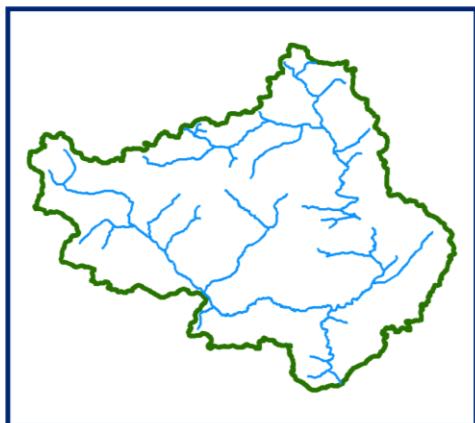
28 Jan 2014



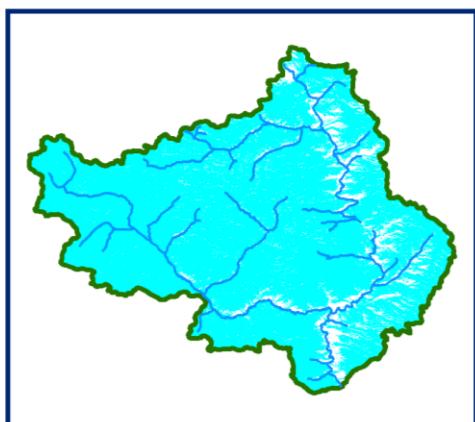
SNOW

0.9 182736
Kilometers

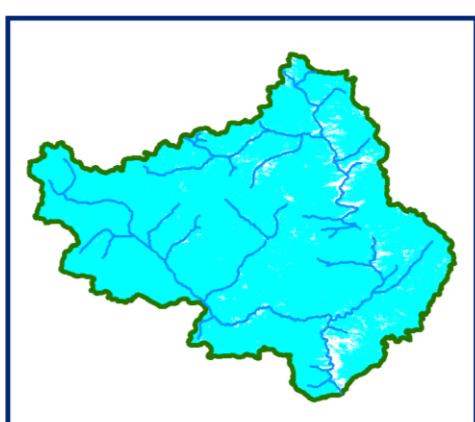
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED
DATA NOT AVAILABLE



DATA USED
20 Jan 2014



DATA USED
23 Jan 2014
27 Jan 2014
28 Jan 2014

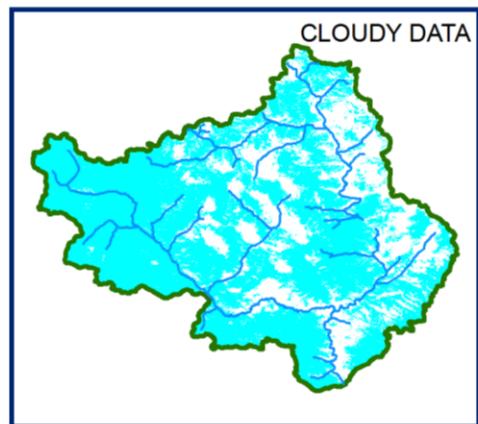


SNOW

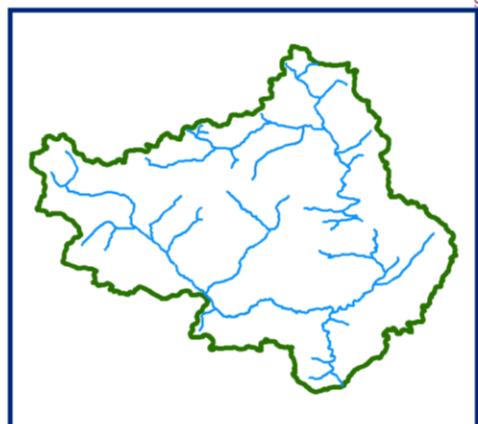
0.9 182736
Kilometers

SNOW COVER MAP

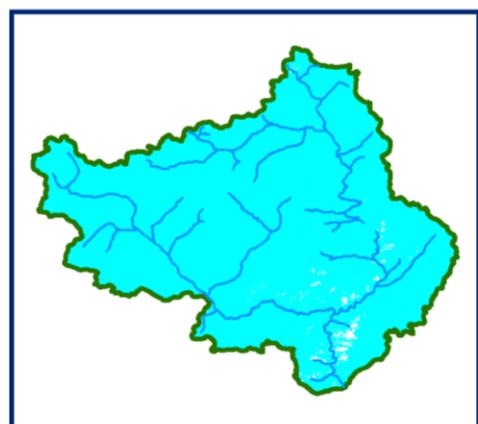
: SPITI BASIN



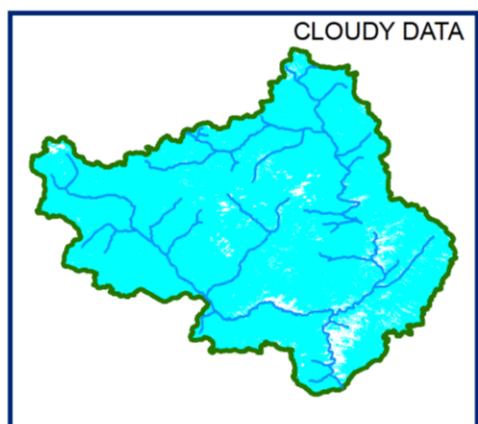
01 Feb 2014



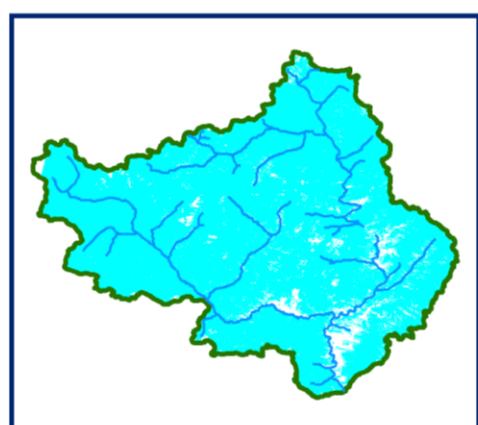
DATA NOT AVAILABLE



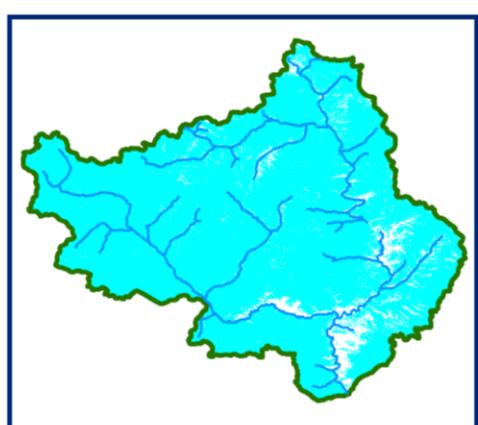
16 Feb 2014



20 Feb 2014



21 Feb 2014



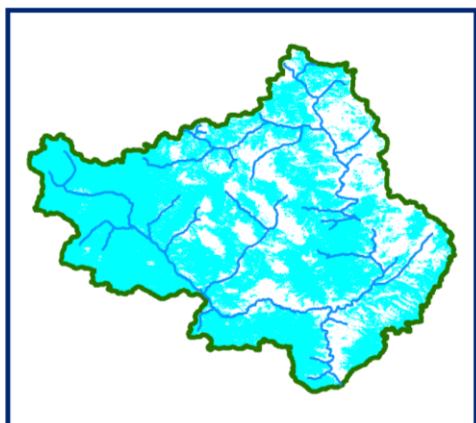
25 Feb 2014



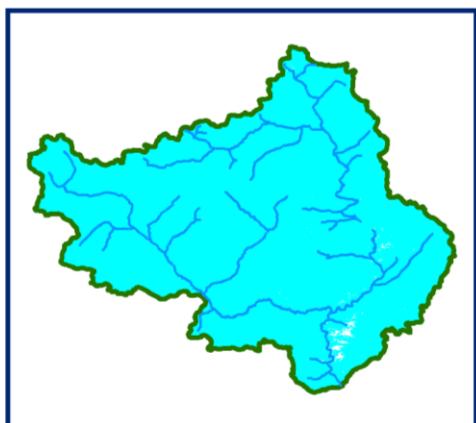
0.9 182736
Kilometers

A scale bar labeled '0.9 182736 Kilometers' with a corresponding horizontal line.

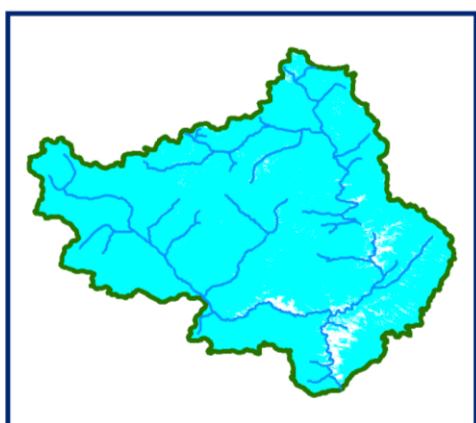
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED
01 Feb 2014



DATA USED
16 Feb 2014
20 Feb 2014



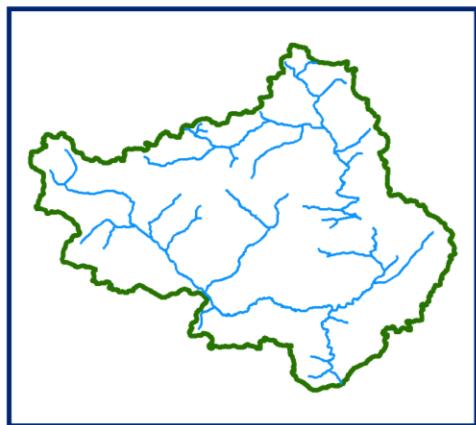
DATA USED
21 Feb 2014
25 Feb 2014



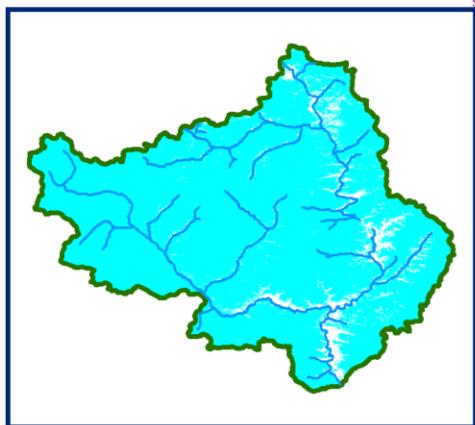
SNOW

0.9 182736
Kilometers

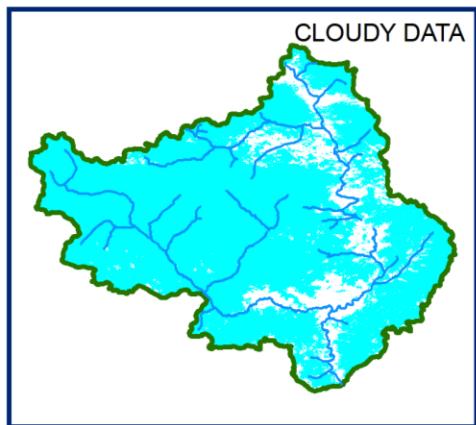
SNOW COVER MAP : SPITI BASIN



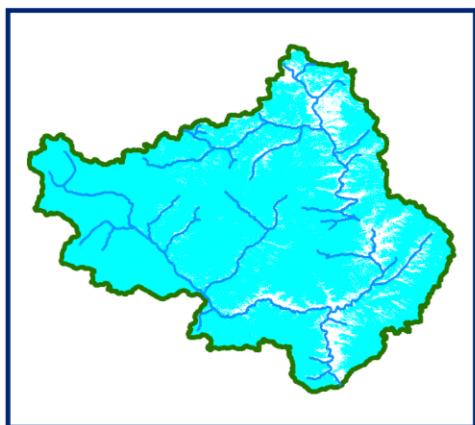
DATA NOT AVAILABLE



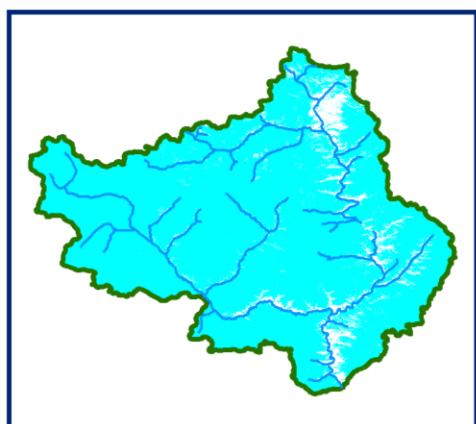
07 March 2014



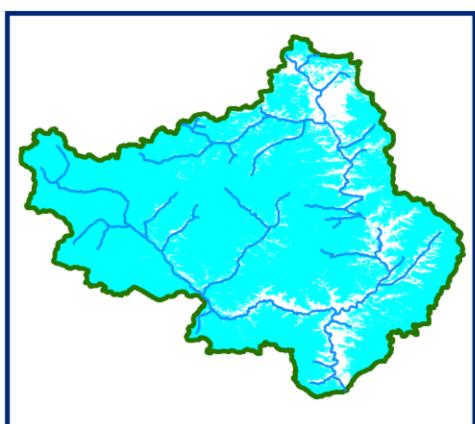
12 March 2014



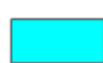
16 March 2014



21 March 2014

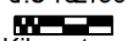


31 March 2014



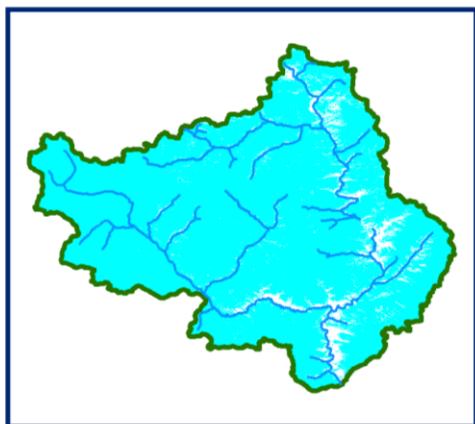
SNOW

0.9 182736

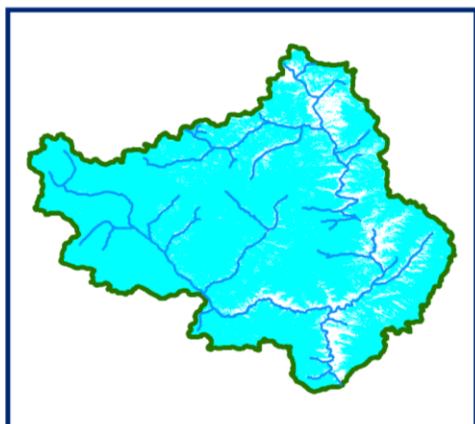


Kilometers

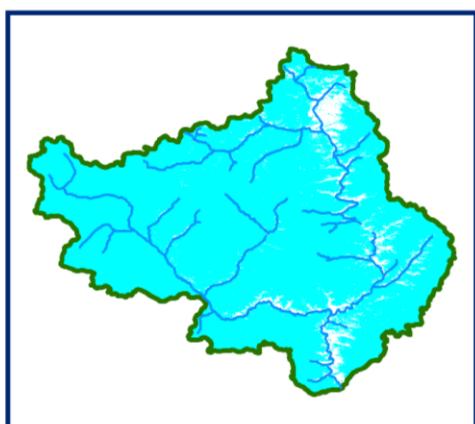
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED
07 March 2014



DATA USED
16 March 2014



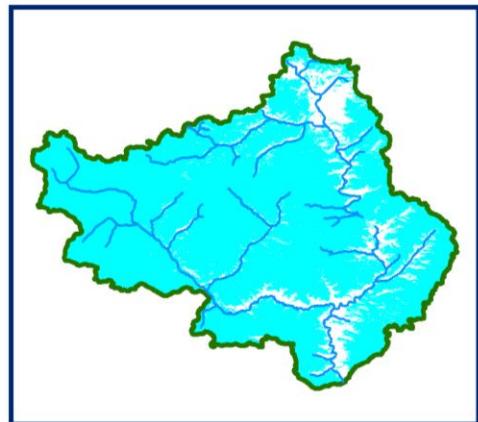
DATA USED
21 March 2014
31 March 2014



SNOW

0.9 182736
Kilometers

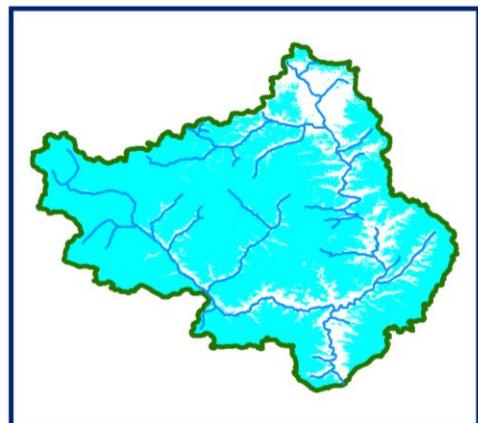
SNOW COVER MAP : SPITI BASIN



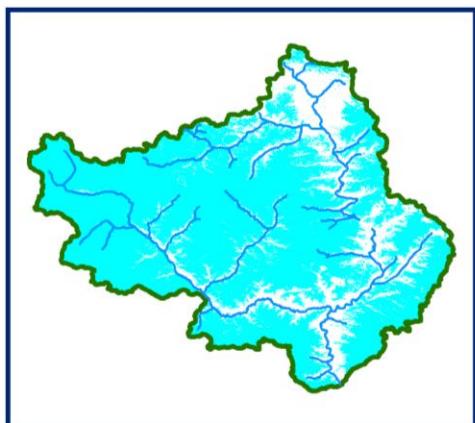
02 April 2014



09 April 2014



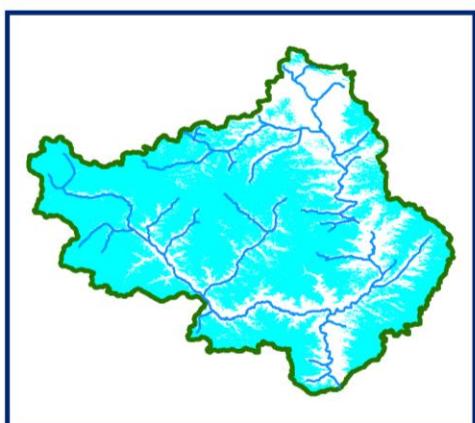
12 April 2014



14 April 2014



24 April 2014

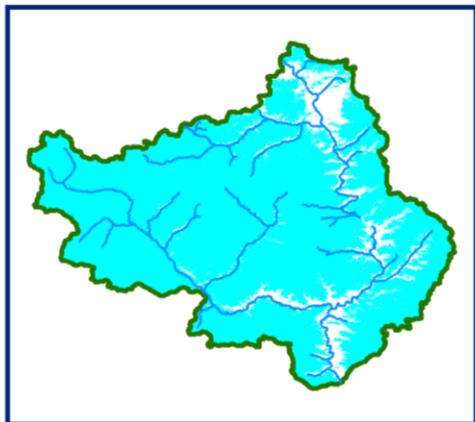


28 April 2014

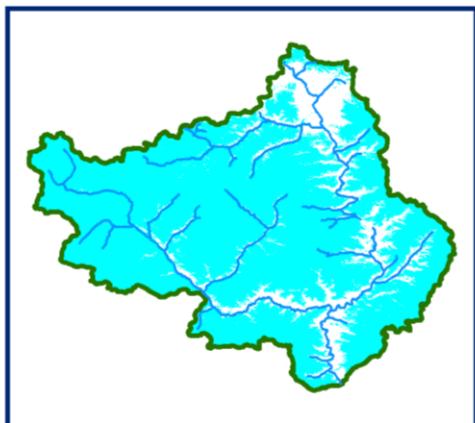


0.9 182736
Kilometers

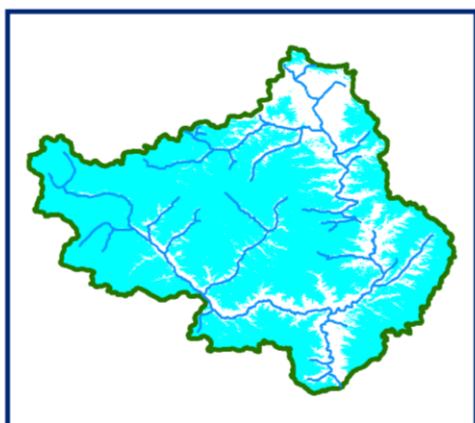
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED
02 April 2014
05 April 2014
09 April 2014



DATA USED
12 April 2014
14 April 2014



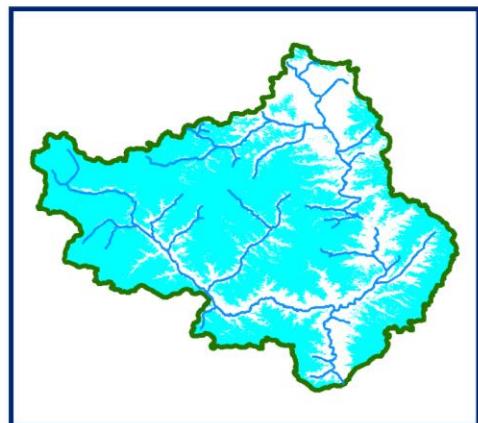
DATA USED
24 April 2014
26 April 2014
28 April 2014



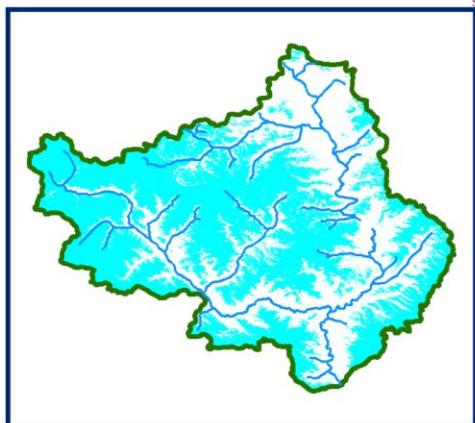
SNOW

0.9 182736
Kilometers

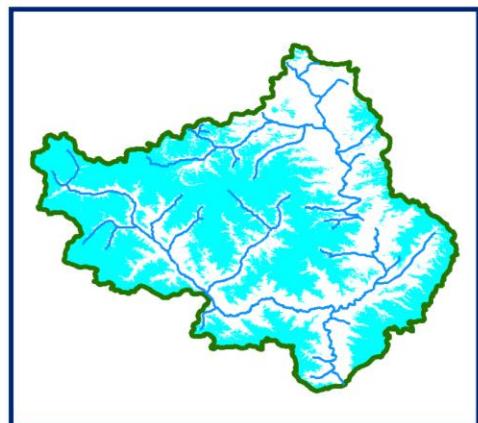
SNOW COVER MAP : SPITI BASIN



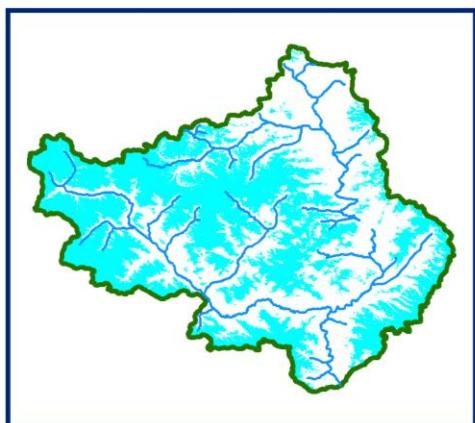
01 May 2014



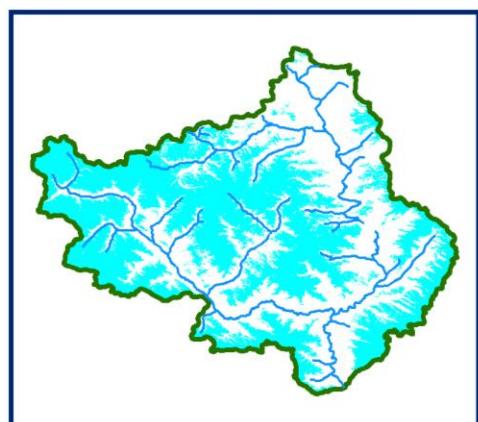
08 May 2014



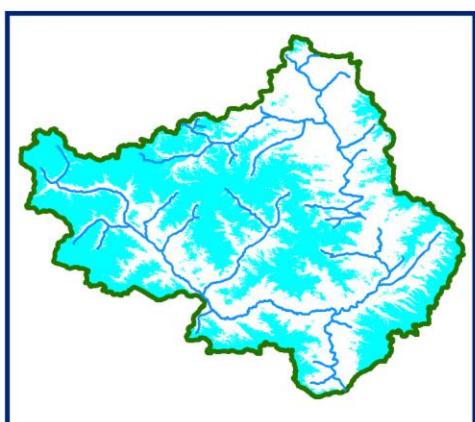
16 May 2014



20 May 2014



22 May 2014



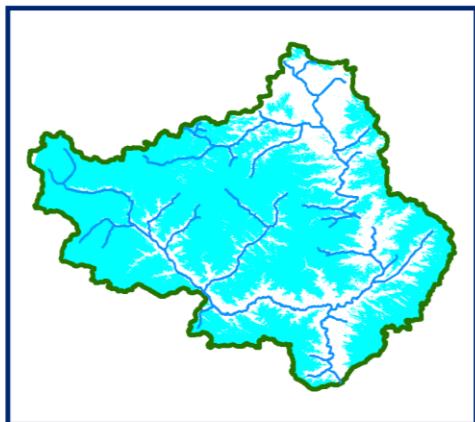
27 May 2014



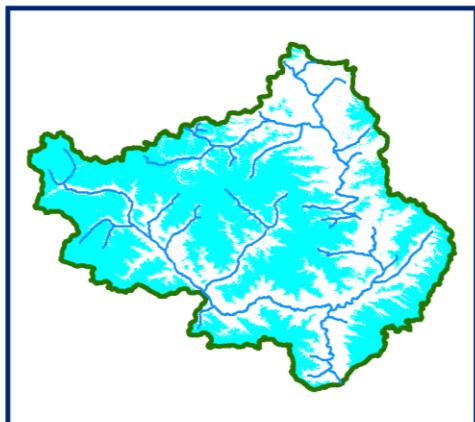
SNOW

0.9 182736
Kilometers

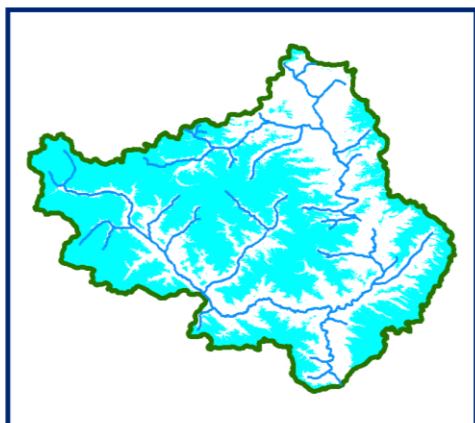
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED
01 May 2014
03 May 2014
08 May 2014



DATA USED
16 May 2014
18 May 2014
20 May 2014



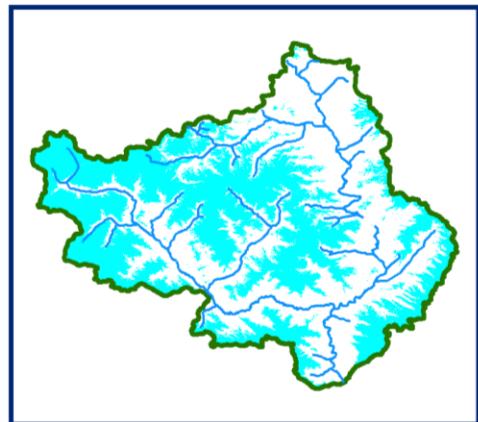
DATA USED
22 May 2014
25 May 2014
28 May 2014



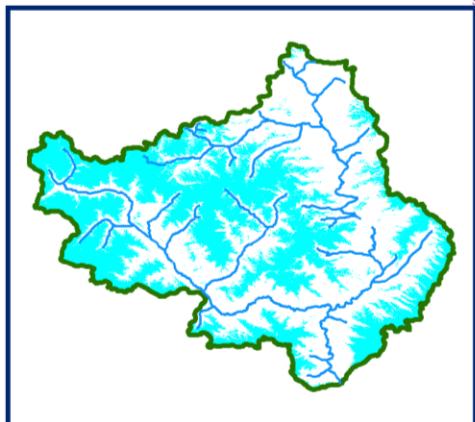
SNOW

0.9 182736
Kilometers

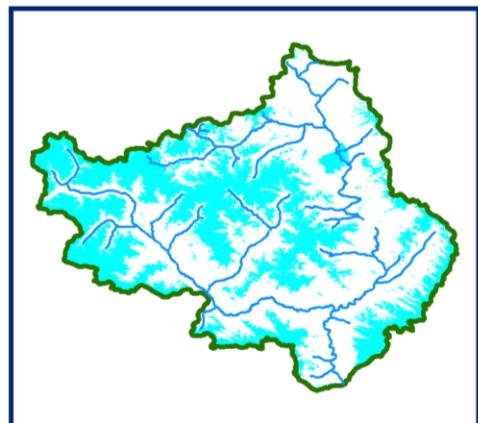
SNOW COVER MAP : SPITI BASIN



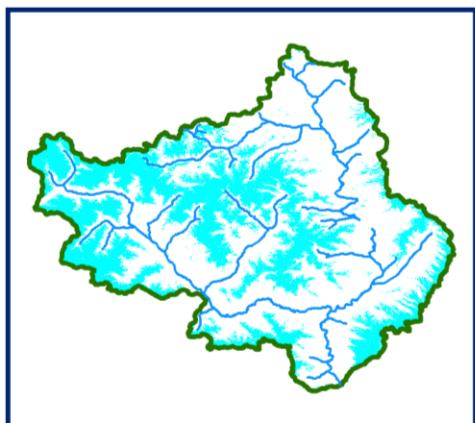
03 June 2014



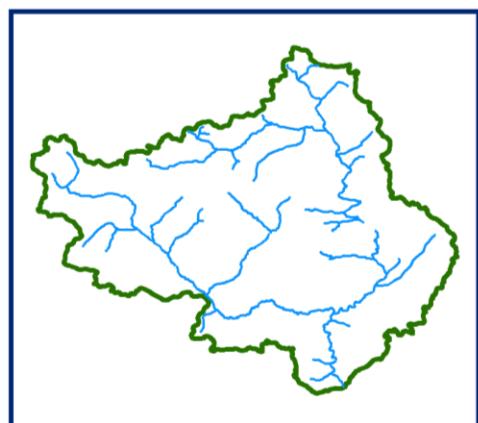
06 June 2014



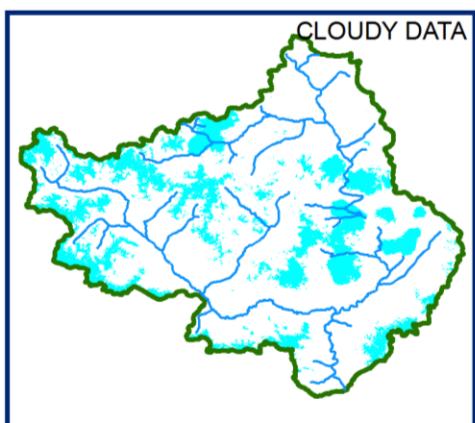
11 June 2014



16 June 2014



DATA NOT AVAILABLE



28 June 2014

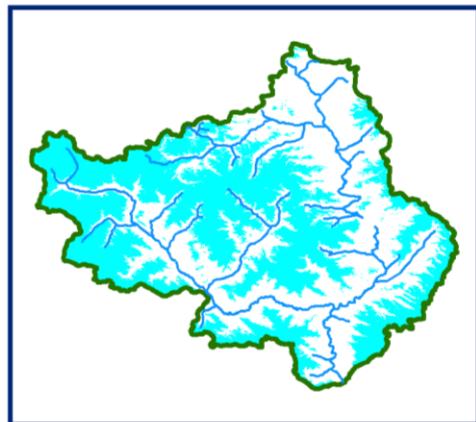


SNOW

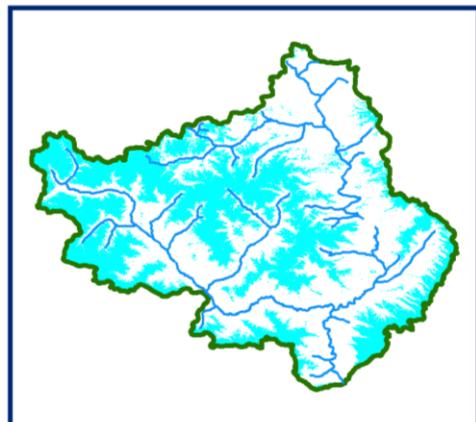
0.9 182736



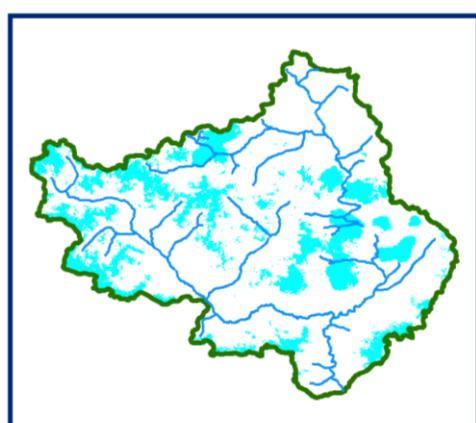
10 DAILY SNOW COVER MAP: SPITI BASIN



DATA USED
03 June 2014
04 June 2014
06 June 2014



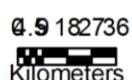
DATA USED
11 June 2014
16 June 2014
20 June 2014



DATA USED
28 June 2014



SNOW



BASPA BASIN

AREAL EXTENT OF SNOW (5 DAILY)

BASIN NAME: BASPA

BASIN AREA: 1096 sq km

S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover
October 2013									
1.	04-10-2013	285	26	5%	4.	14-10-2013	325	30	Clear
2.	09-10-2013	268	24	Clear	5.	23-10-2013	256	23	Clear
3.	13-10-2013	187	17	30%	6.	24-10-2013	231	21	Clear
November 2013									
1.	02-11-2013	254	23	Clear	4.	17-11-2013	676	62	Clear
2.	12-11-2013	825	75	Clear	5.	21-11-2013	555	51	Clear
3.	16-11-2013	724	66	Clear	6.	26-11-2013	469	43	Clear
December 2013									
1.	01-12-2013	360	33	Clear	4.	20-12-2013	333	30	Clear
2.	10-12-2013	320	29	Clear	5.	23-12-2013	644	59	Clear
3.	19-12-2013	247	23	Clear	6.	25-12-2013	500	46	Clear
January 2014									
1.	20-01-2014	992	90	Clear	3.	28-01-2014	1004	92	Clear
2.	23-01-2014	1001	91	70%					
February 2014									
1.	01-02-2014	868	79	60%	3.	21-02-2014	1063	97	3%
2.	16-02-2014	1098	100	Clear	4.	25-02-2014	1037	95	80%
March 2014									
1.	07-03-2014	1059	97	Clear	4.	17-03-2014	1094	100	100%
2.	12-03-2014	1074	98	30%	5.	21-03-2014	1039	95	20%
3.	16-03-2014	1033	94	Clear	6.	31-03-2014	1009	92	Clear
April 2014									
1.	02-04-2014	1034	94	20%	6.	14-04-2014	1035	94	Clear
2.	05-04-2014	981	89	Clear	7.	24-04-2014	960	88	Clear
3.	09-04-2014	982	90	5%	8.	26-04-2014	973	89	Clear
4.	10-04-2014	977	89	Clear	9.	28-04-2014	947	86	Clear
5.	12-04-2014	994	91	Clear					
May 2014									
1.	01-05-2014	936	85	Clear	6.	18-05-2014	740	68	50%
2.	03-05-2014	804	73	10%	7.	20-05-2014	661	60	50%
3.	04-05-2014	868	79	5%	8.	25-05-2014	833	76	Clear
4.	08-05-2014	880	80	Clear	9.	28-05-2014	803	73	Clear
5.	16-05-2014	897	82	Clear					

June 2014									
1.	03-06-2014	797	73	Clear	5.	11-06-2014	695	63	Clear
2.	04-06-2014	760	69	Clear	6.	13-06-2014	664	61	2%
3.	06-06-2014	749	68	Clear	7.	16-06-2014	618	56	Clear
4.	09-06-2014	663	61	10%	8.	28-06-2014	446	41	15%

AREAL EXTENT OF SNOW (10 DAILY)

BASIN NAME: BASPA

BASIN AREA: 1096 sq km

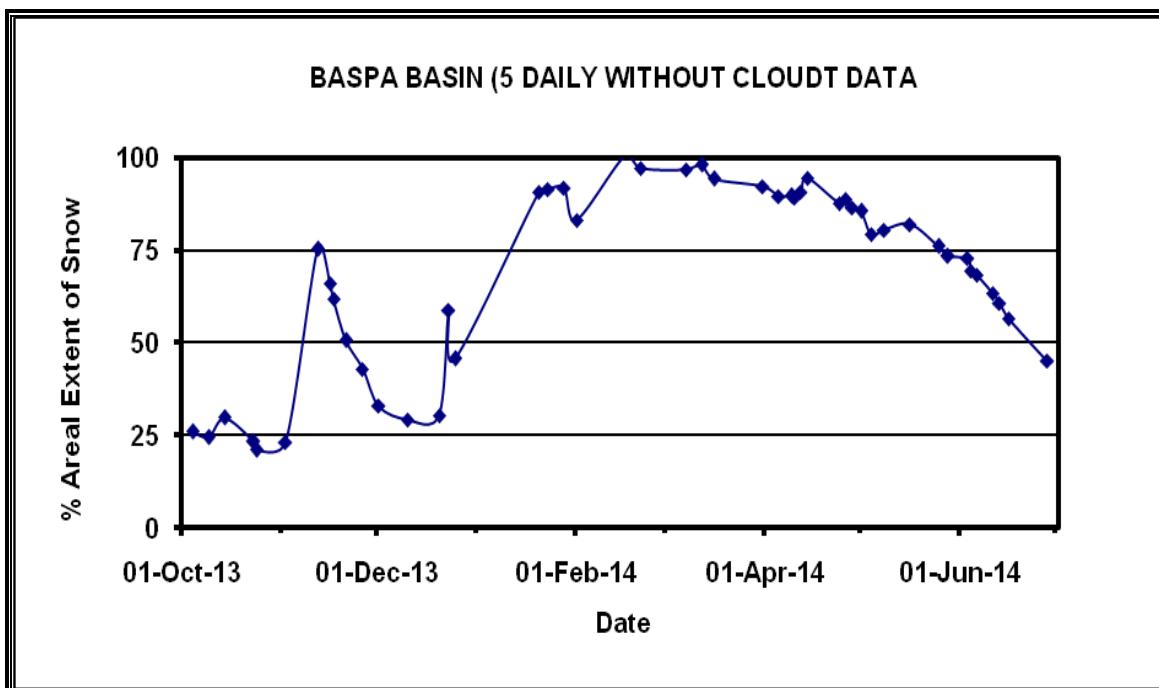
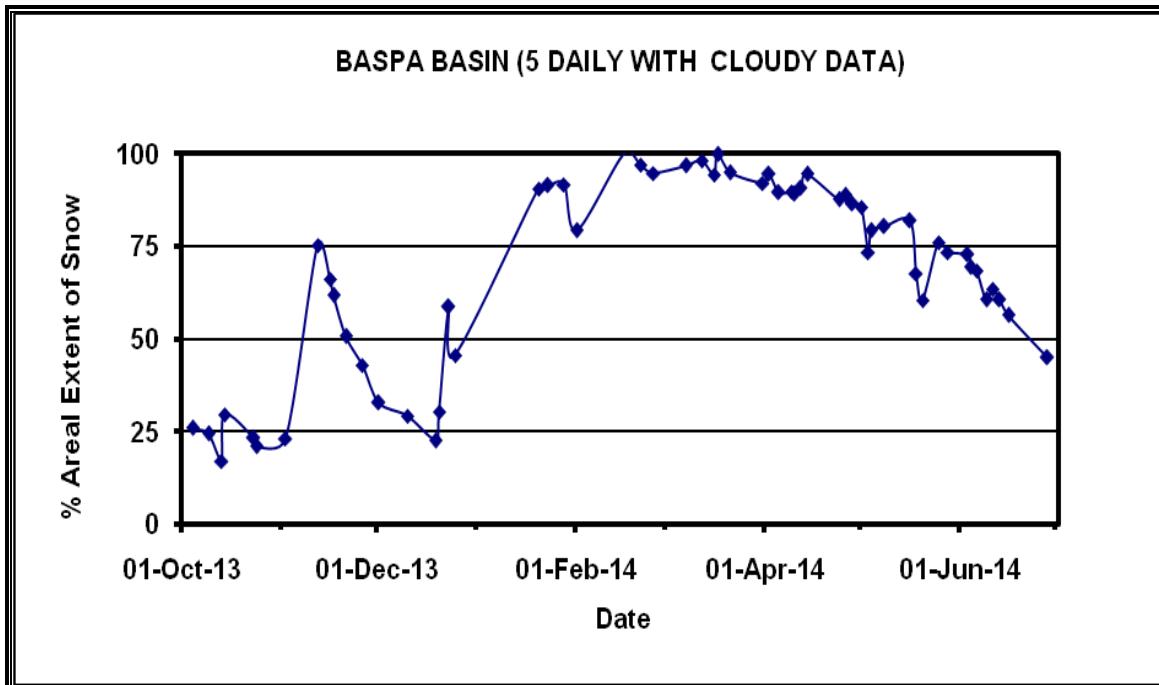
S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud cover	S. No	Date	Snow cover (sq km)	Snow cover (%)	Cloud cover
October 2013									
1.	04-Oct-2013	331	30	5%	5.	23-Oct-2013	264	24	Clear
2.	09-Oct-2013			Clear	6.	24-Oct-2013			Clear
3.	13-Oct-2013	340	31	30%					
4.	14-Oct-2013			Clear					
November 2013									
1.	02-Nov-2013	2232	21	Clear	5.	21-Nov-2013	495	45	Clear
2.	12-Nov-2013	773	70	Clear	6.	26-Nov-2013			Clear
3.	16-Nov-2013			Clear					
4.	17-Nov-2013			Clear					
December 2013									
1.	01-Dec-2013	353	32	Clear	5.	23-Dec-2013	563	51	Clear
2.	10-Dec-2013			Clear	6.	25-Dec-2013			Clear
3.	19-Dec-2013	305	28	Clear					
4.	20-Dec-2013			Clear					
January 2014									
1.	20-Jan-2014	966	88	Clear	2.	23-Jan-2014	1002	91	70%
				Clear	3.	28-Jan-2014			Clear
February 2014									
1.	01-Feb-2014	868	79	60%	3.	21-Feb-2014	1035	94	3%
2.	16-Feb-2014	1098	100	Clear					
March 2014									
1.	07-March-2014	1059	97	Clear	4.	21-March-2014	1038	95	20%
2.	12-March-2014	1071	98	30%	5.	31-March-2014			Clear
3.	16-March-2014			Clear					
April 2014									
1.	02-April-2014	1010	92	20%	7.	24-April-2014	984	90	Clear
2.	05-April-2014			Clear	8.	26-April-2014			Clear
3.	09-April-2014			5%	9.	28-April-2014			Clear
4.	10-April-2014	1041	95	Clear					
5.	12-April-2014			Clear					
6.	14-April-2014			Clear					
May 2014									
1.	01-May-2014	939	86	Clear	7.	25-May-2014	843	77	Clear
2.	04-May-2014			5 %	8.	28-May-2014			Clear

3.	08-May-2014			Clear						
4.	16-May-2014	897	82	Clear						
5.	18-May-2014			50%						
6.	20-May-2014			50%						

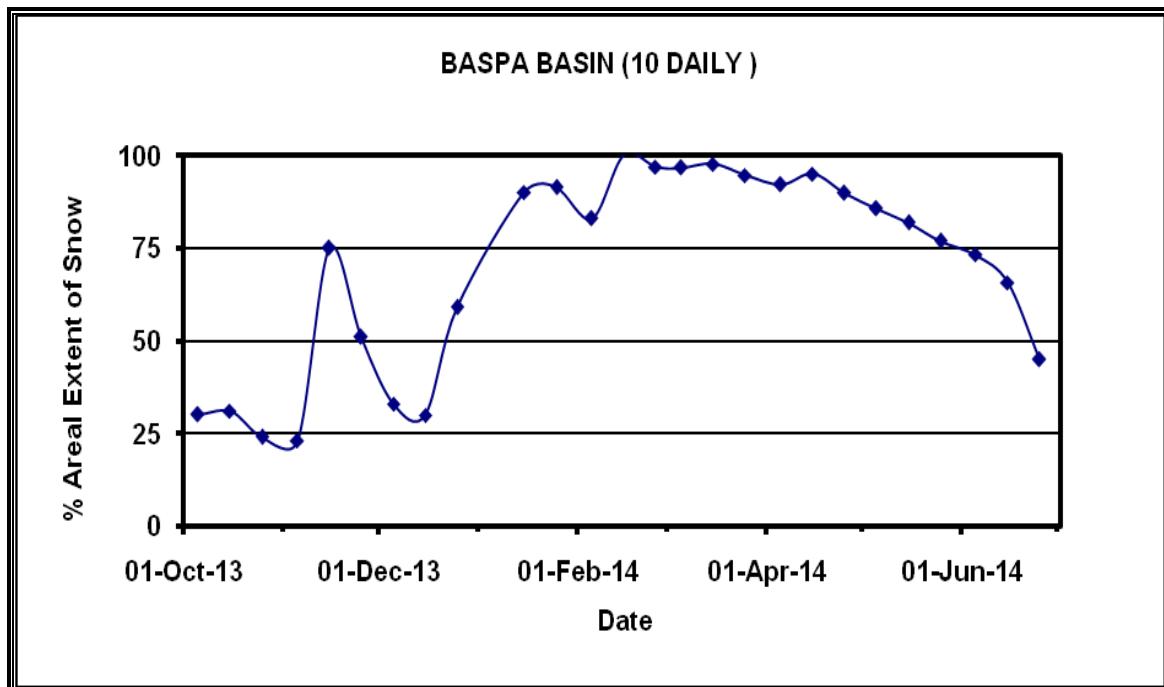
June 2014

1.	03-June-2014	802	73	Clear	7.	28-June-2014	446	41	15%
2.	04-June-2014			Clear					
3.	06-June-2014			Clear					
4.	11-June-2014	720	66	Clear					
5.	13-June-2014			2%					
6.	16-June-2014			Clear					

Snow cover depletion curve



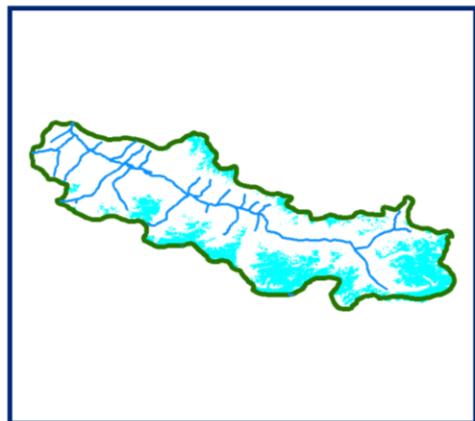
Snow cover depletion curve



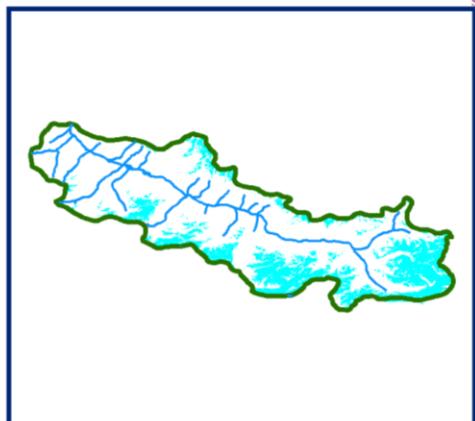
SNOW COVER MAP

SNOW COVER MAP

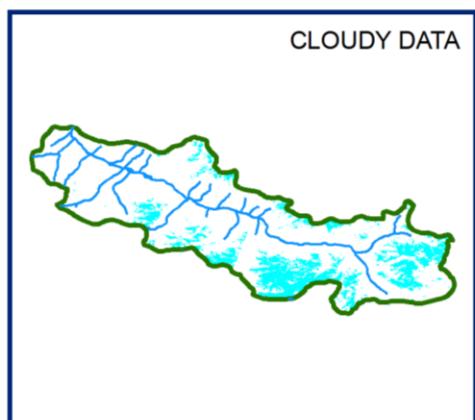
: BASPA BASIN



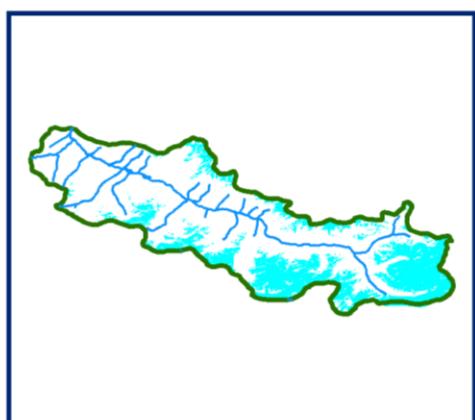
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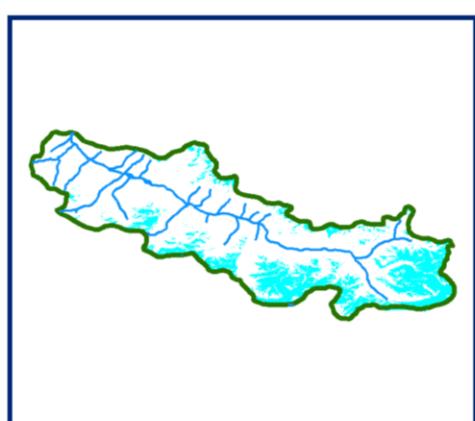
09 Oct 2013



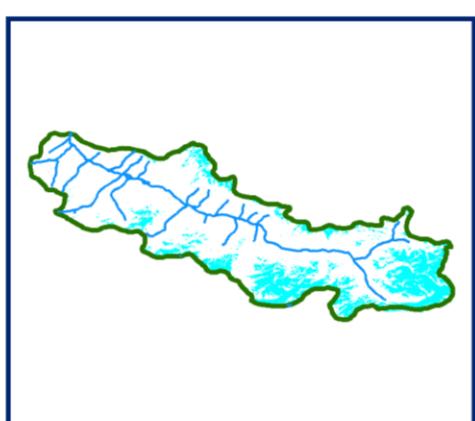
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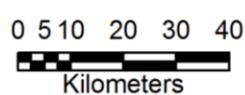
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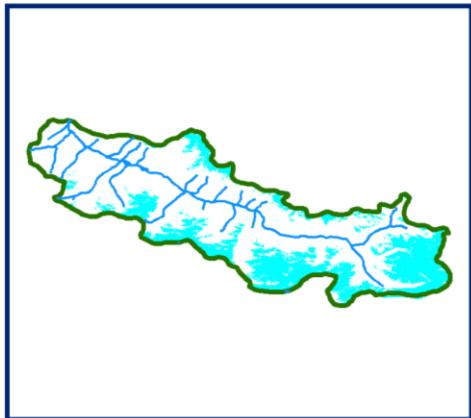
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24 Oct 2013



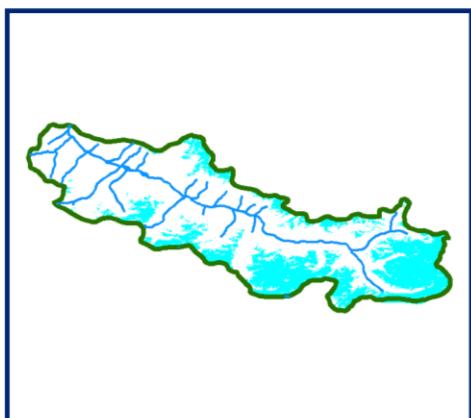
10 DAILY SNOW COVER MAP: BASPA BASIN



DATA USED

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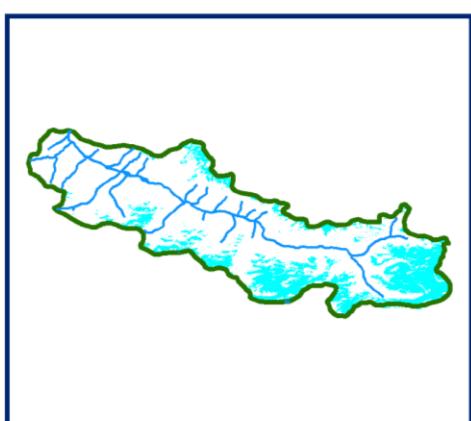
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13 Oct 2013

14 Oct 2013



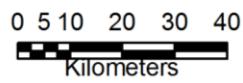
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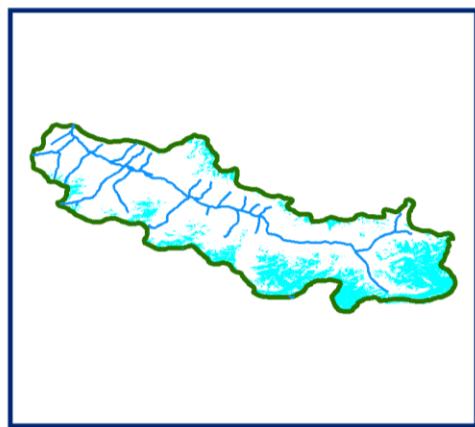
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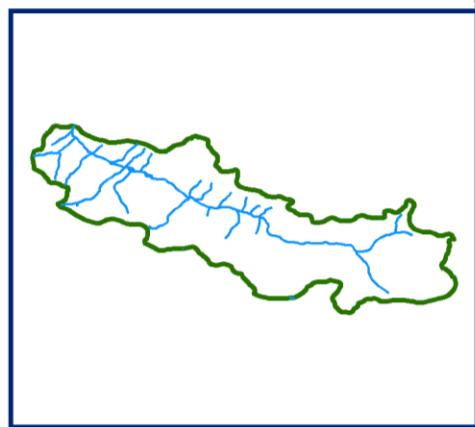
SNOW



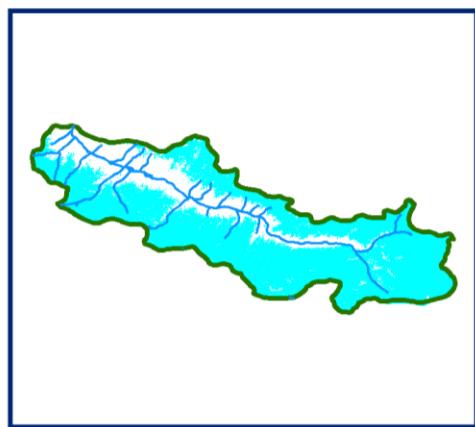
SNOW COVER MAP : BASPA BASIN



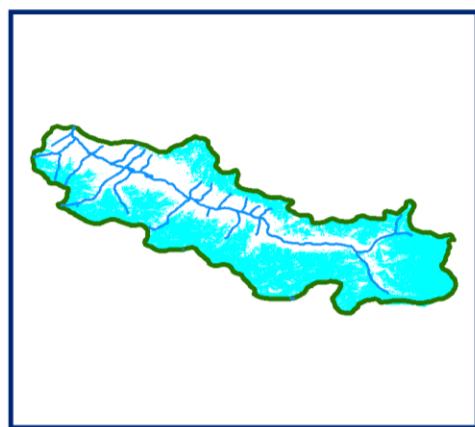
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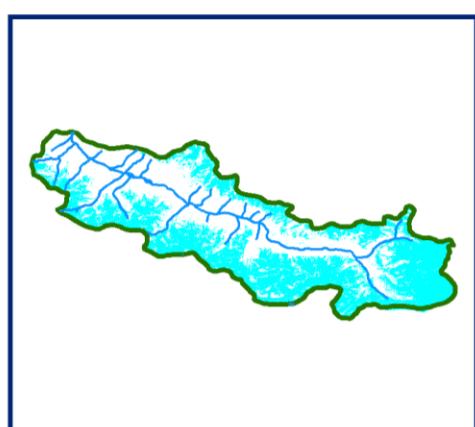
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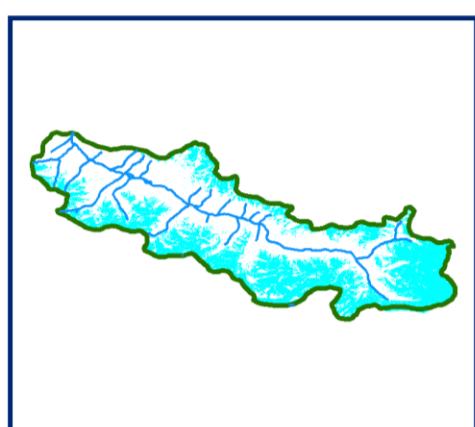
12 Nov 2013



17 Nov 2013



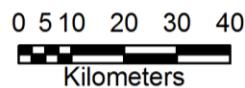
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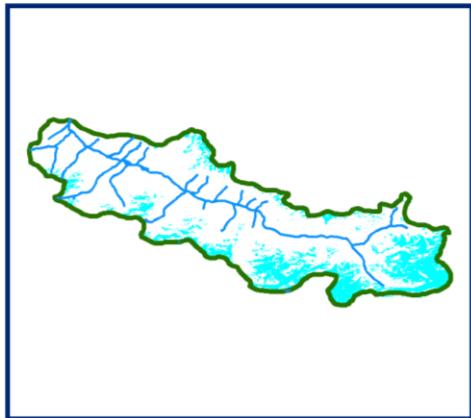
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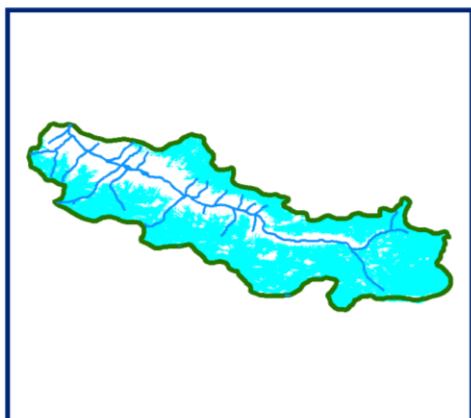
SNOW



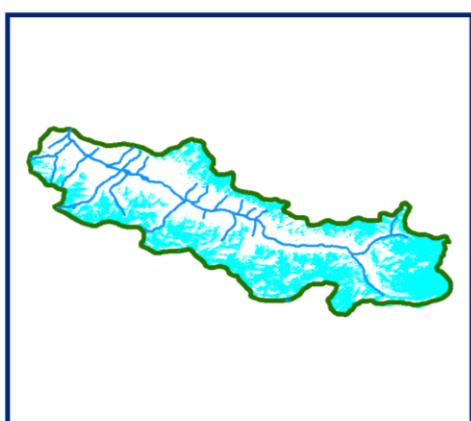
10 DAILY SNOW COVER MAP: BASPA BASIN



DATA USED
02 Nov 2013



DATA USED
12 Nov 2013
16 Nov 2013
17 Nov 2013



DATA USED
21 Nov 2013
26 Nov 2013

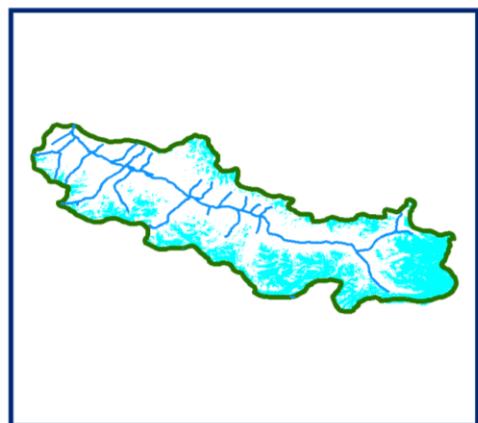


SNOW

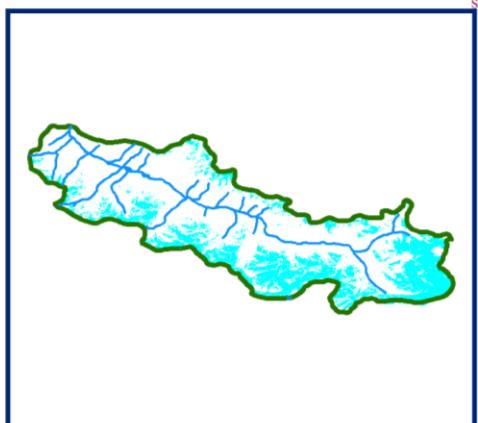
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Kilometers

SNOW COVER MAP

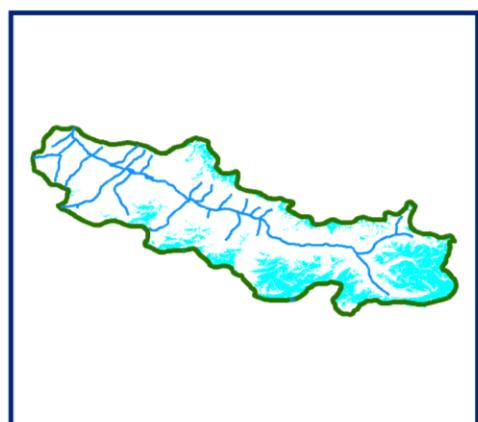
: BASPA BASIN



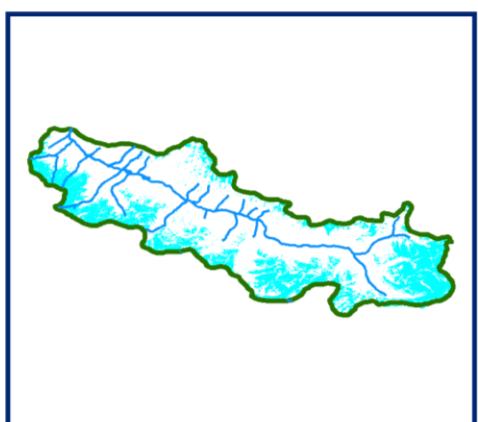
01 Dec 2013



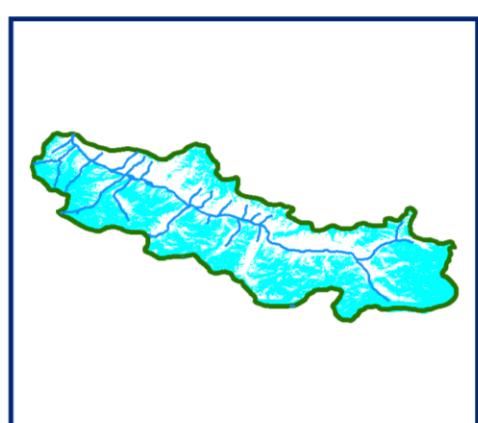
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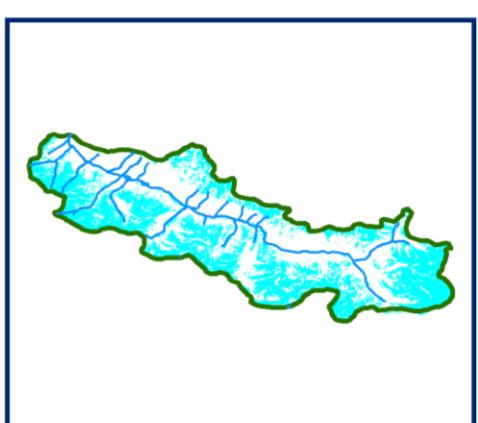
19 Dec 2013



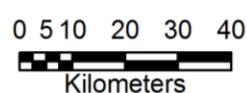
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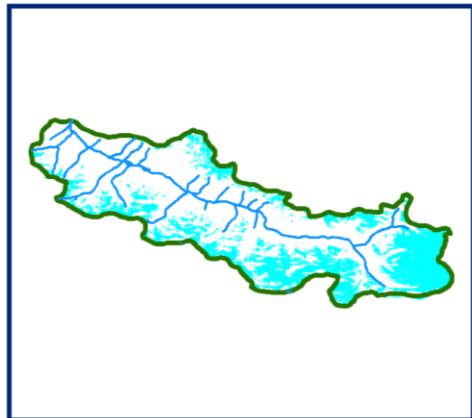
23 Dec 2013



25 Dec 2013



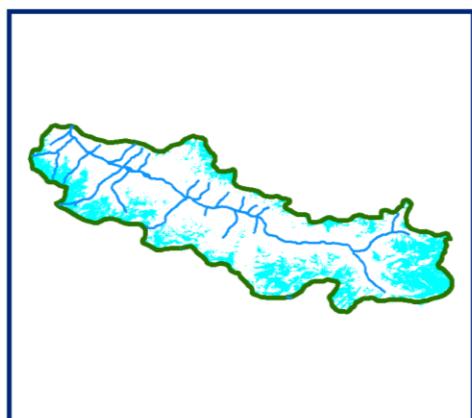
10 DAILY SNOW COVER MAP: BASPA BASIN



DATA USED

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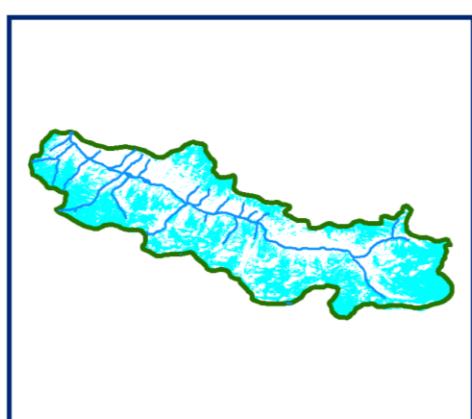
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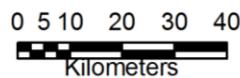
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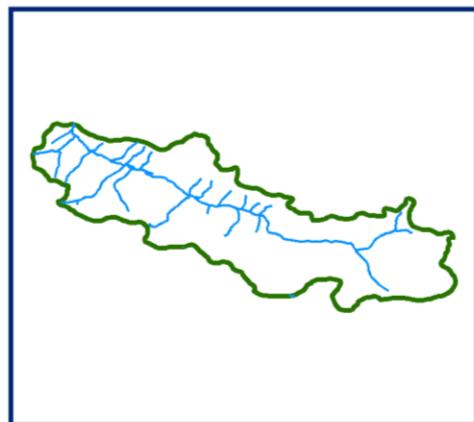
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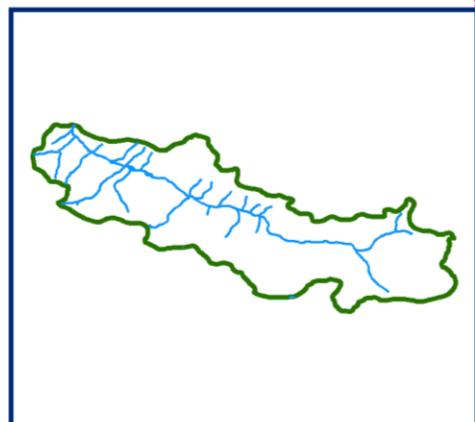
SNOW



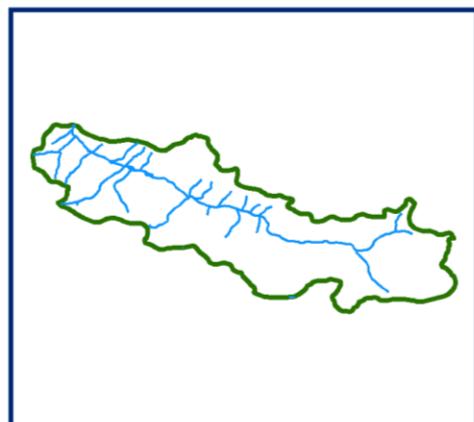
SNOW COVER MAP : BASPA BASIN



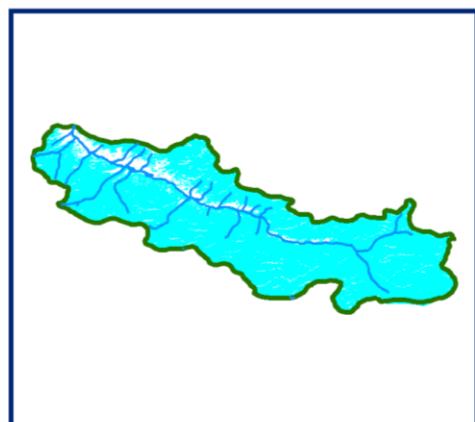
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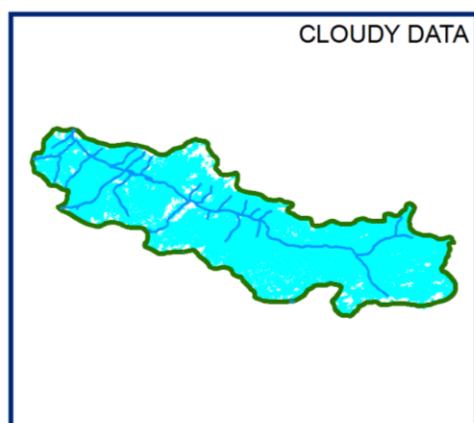
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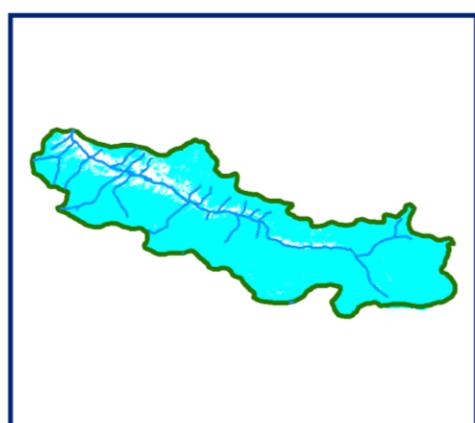
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20 Jan 2014



23 Jan 2014



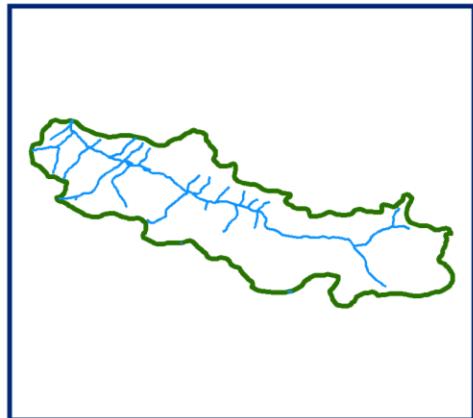
28 Jan 2014



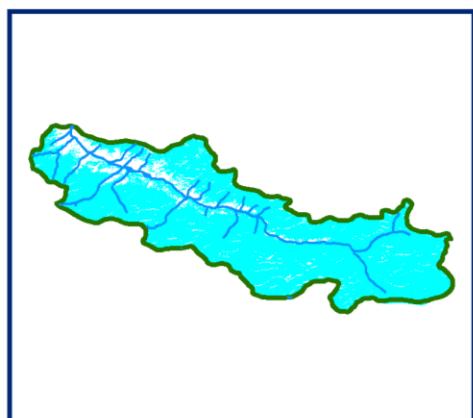
SNOW



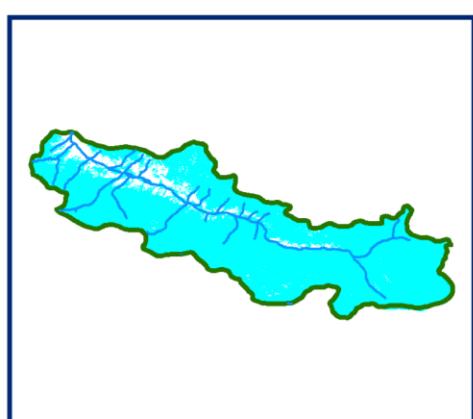
10 DAILY SNOW COVER MAP: BASPA BASIN



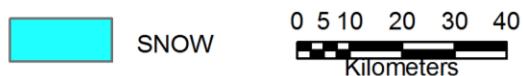
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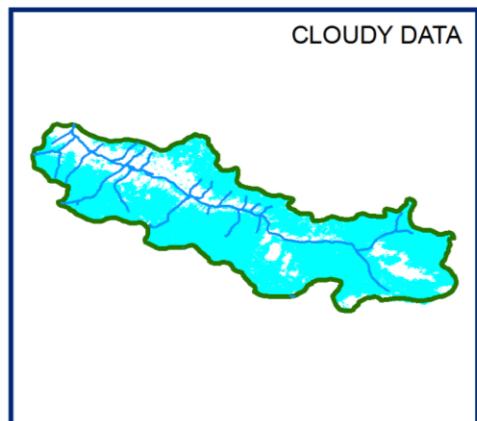
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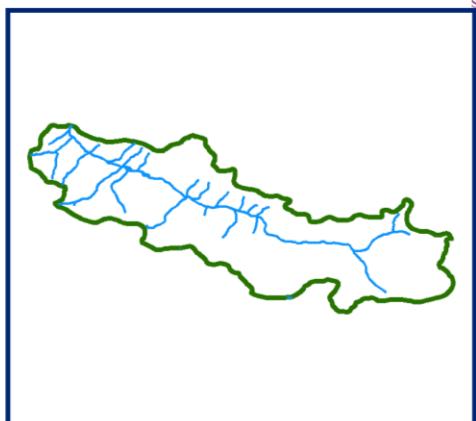
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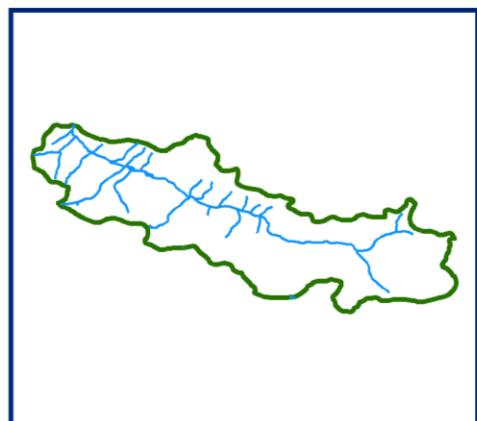
SNOW COVER MAP : BASPA BASIN



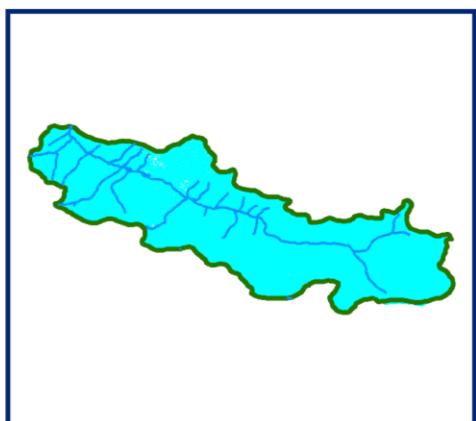
01 Feb 2014



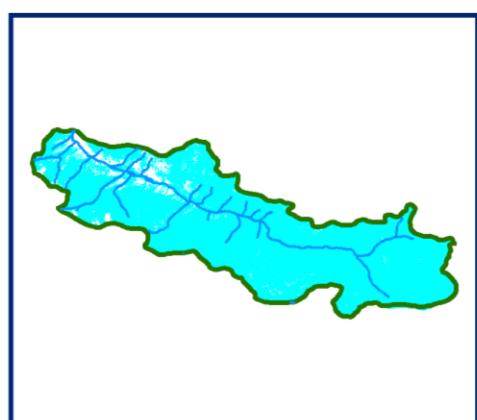
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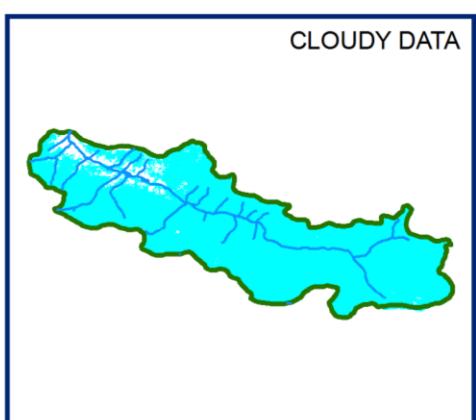
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16 Feb 2014



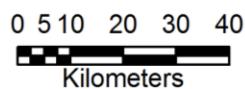
21 Feb 2014



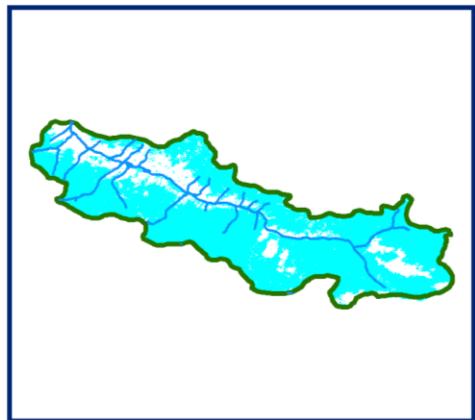
25 Feb 2014



SNOW

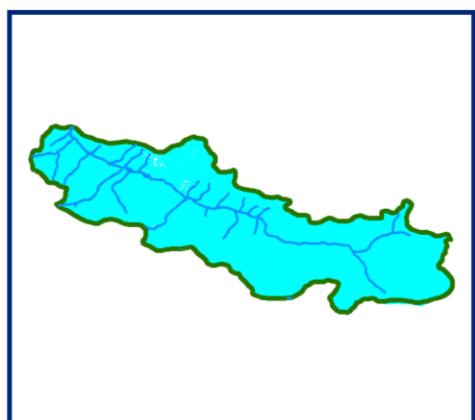


10 DAILY SNOW COVER MAP: BASPA BASIN



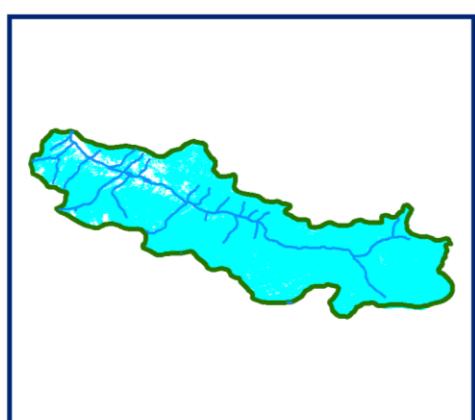
DATA USED

01 Feb 2014



DATA USED

16 Feb 2014



DATA USED

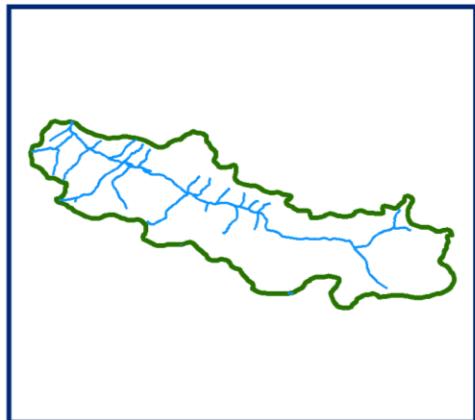
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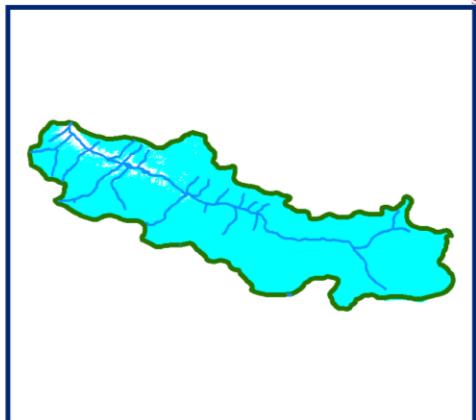
SNOW

0 5 10 20 30 40
Kilometers

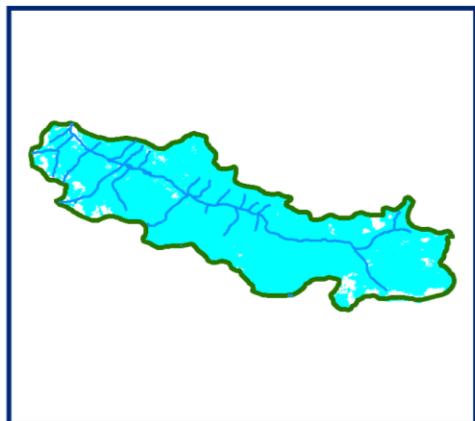
SNOW COVER MAP : BASPA BASIN



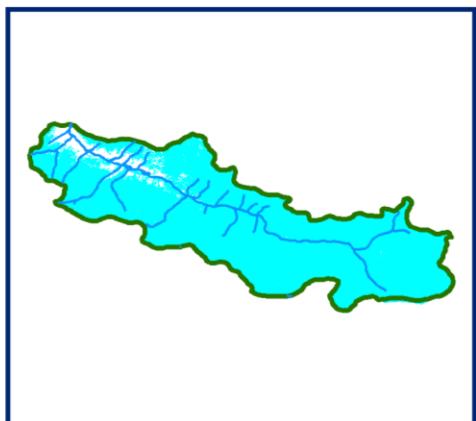
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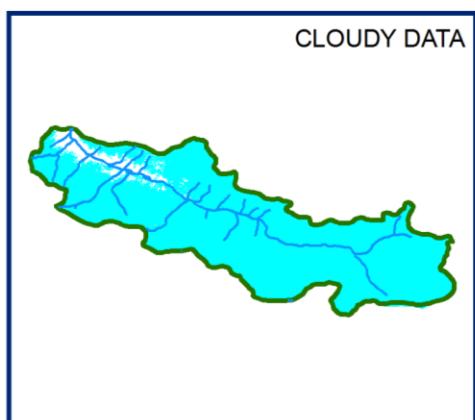
07 March 2014



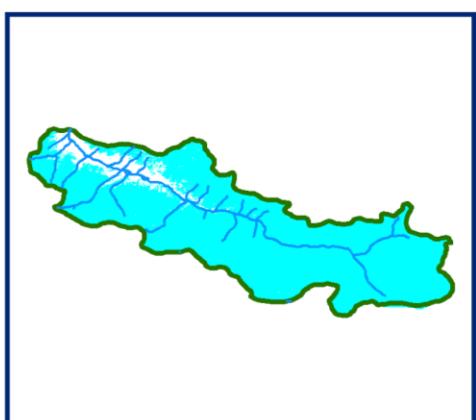
12 March 2014



16 March 2014



21 March 2014



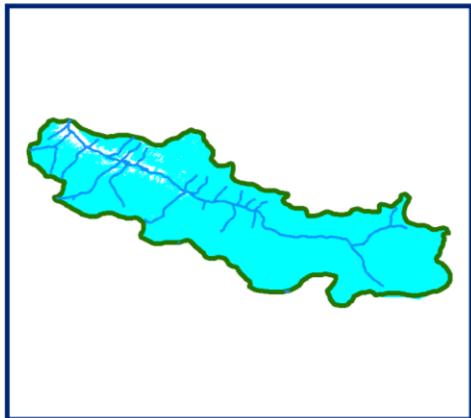
31 March 2014



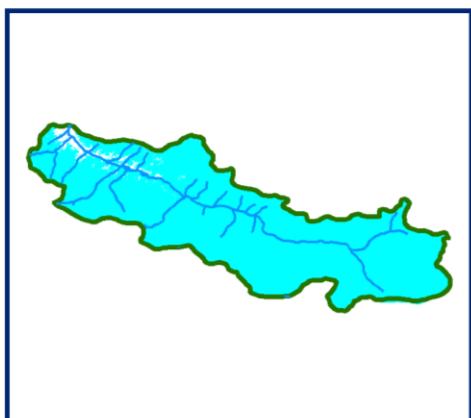
SNOW

0 5 10 20 30 40
Kilometers

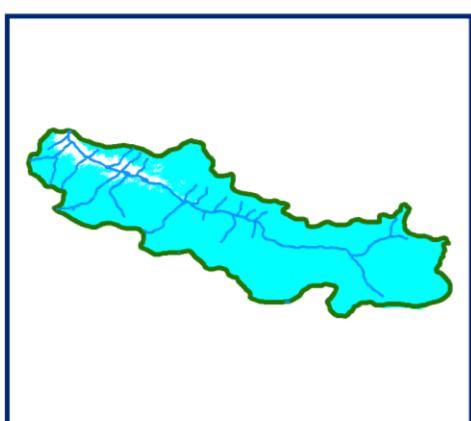
10 DAILY SNOW COVER MAP: BASPA BASIN



DATA USED
07 March 2014



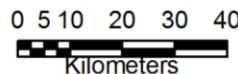
DATA USED
12 March 2014
16 March 2014



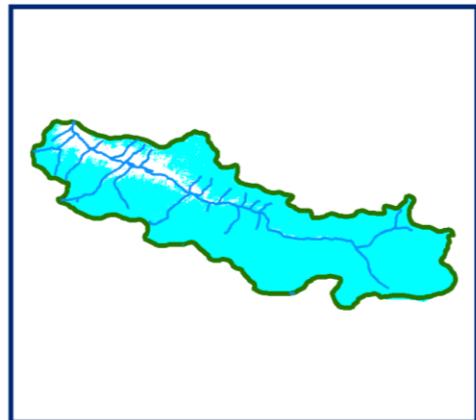
DATA USED
21 March 2014
31 March 2014



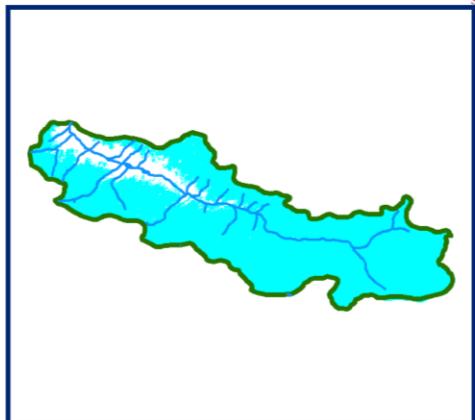
SNOW



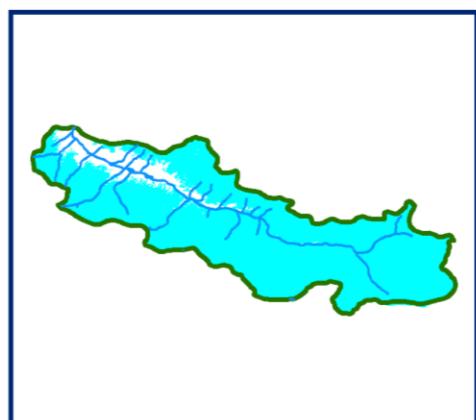
SNOW COVER MAP : BASPA BASIN



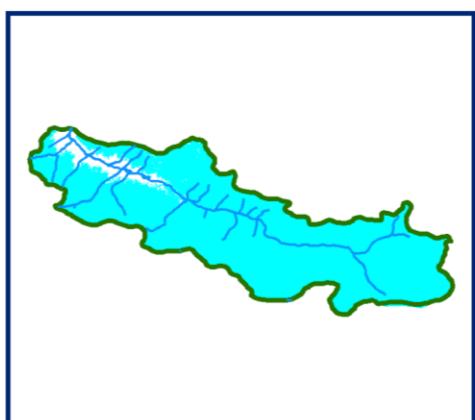
05 April 2014



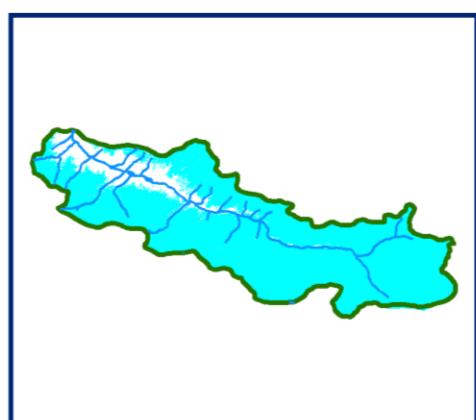
10 April 2014



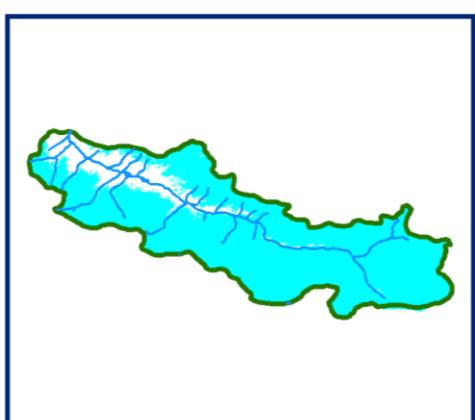
12 April 2014



14 April 2014



24 April 2014

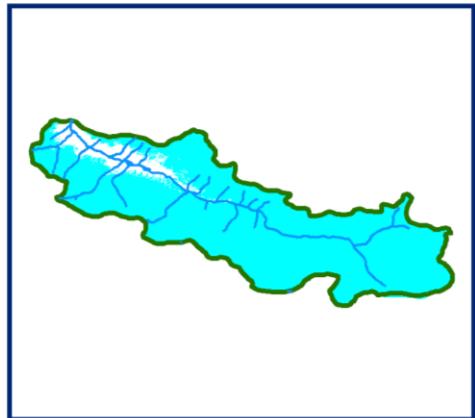


28 April 2014

SNOW

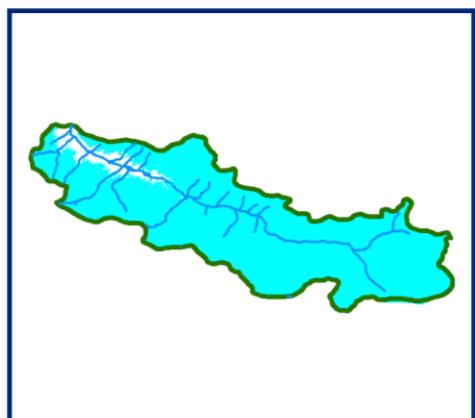
0 5 10 20 30 40
 Kilometers

10 DAILY SNOW COVER MAP: BASPA BASIN



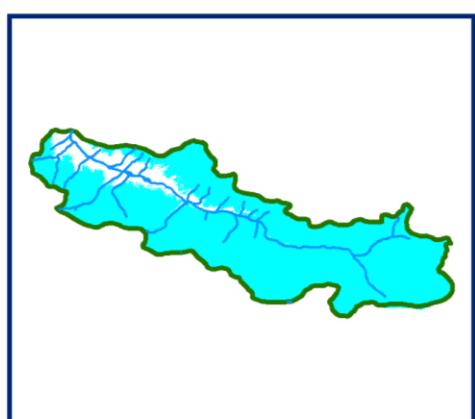
DATA USED

**02 April 2014
05 April 2014
09 April 2014**



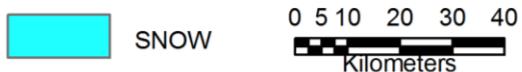
DATA USED

**10 April 2014
12 April 2014
14 April 2014**

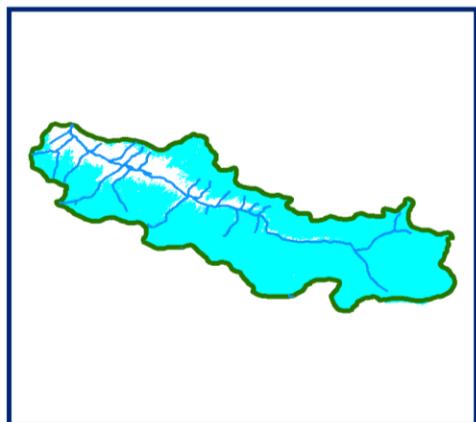


DATA USED

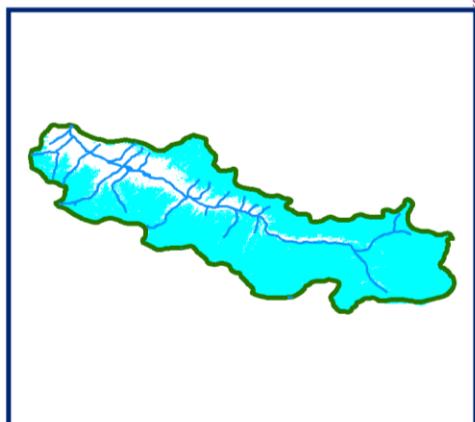
**24 April 2014
26 April 2014
28 April 2014**



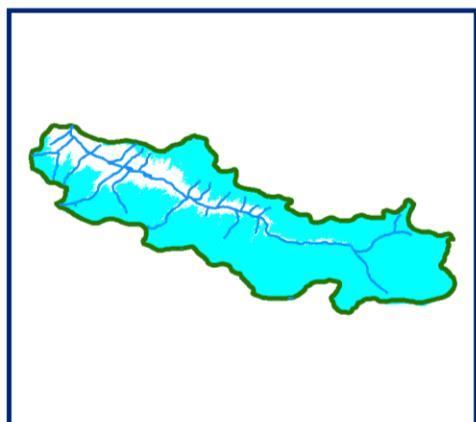
SNOW COVER MAP : BASPA BASIN



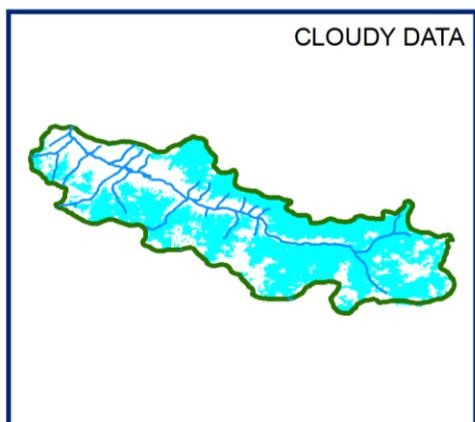
01 May 2014



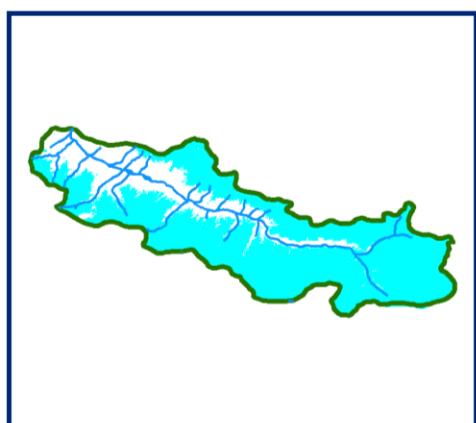
08 May 2014



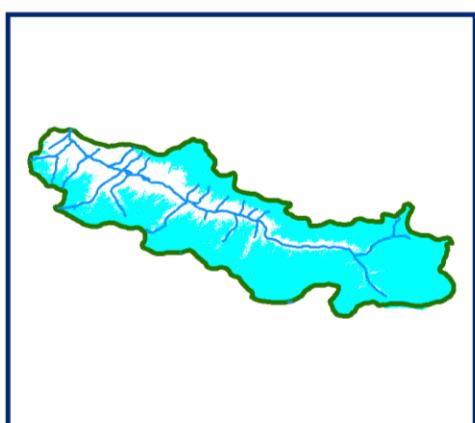
16 May 2014



CLOUDY DATA
20 May 2014



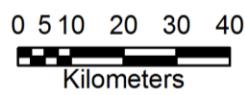
25 May 2014



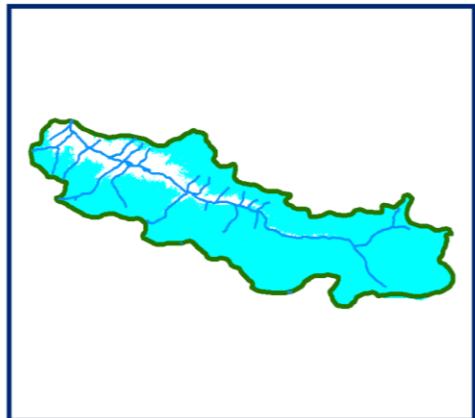
28 May 2014



SNOW

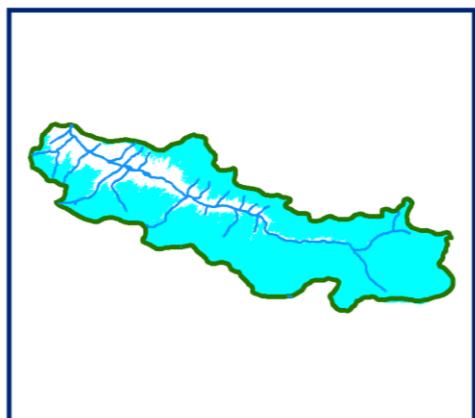


10 DAILY SNOW COVER MAP: BASPA BASIN



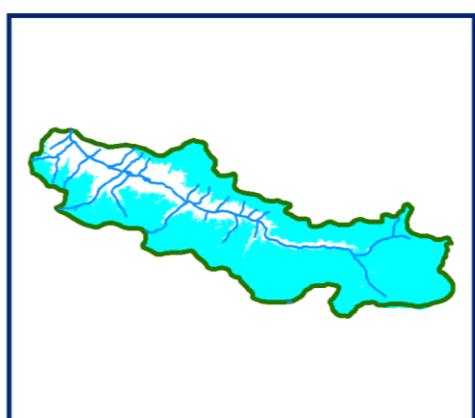
DATA USED

01 May 2014
04 May 2014
08 May 2014



DATA USED

16 May 2014
18 May 2014
20 May 2014



DATA USED

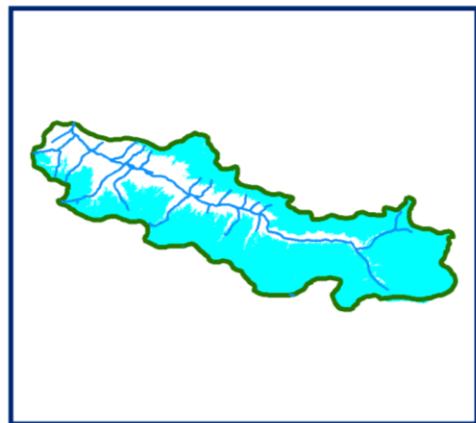
25 May 2014
28 May 2014



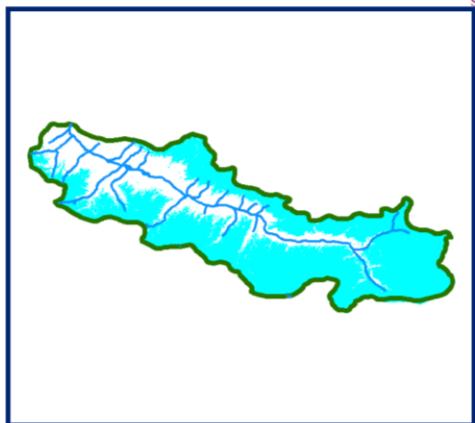
SNOW

0 5 10 20 30 40
Kilometers

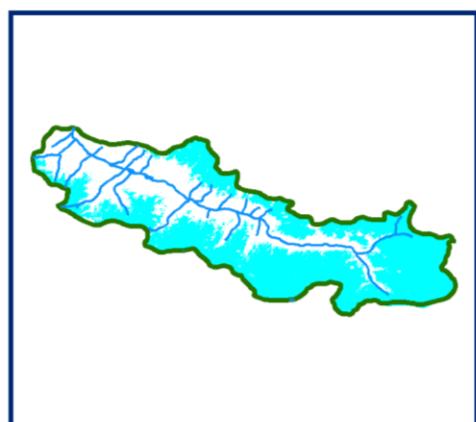
SNOW COVER MAP : BASPA BASIN



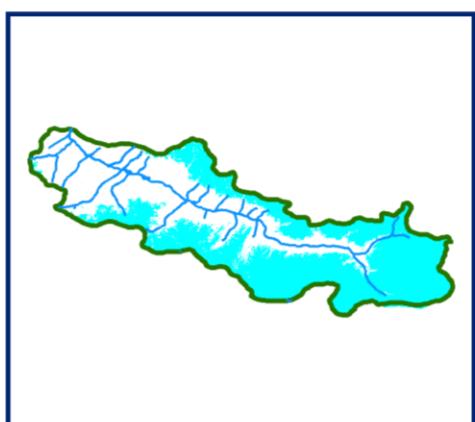
03 June 2014



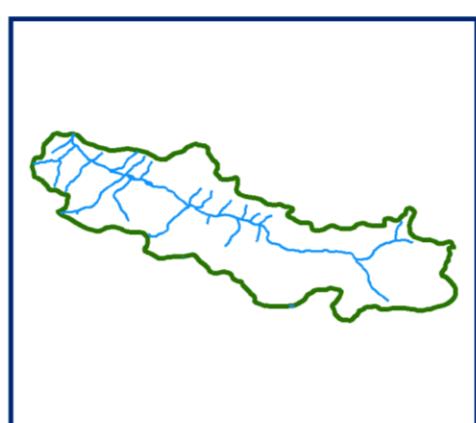
06 June 2014



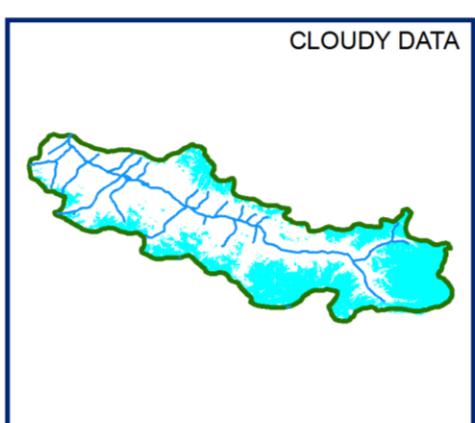
13 June 2014



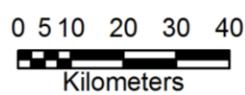
16 June 2014



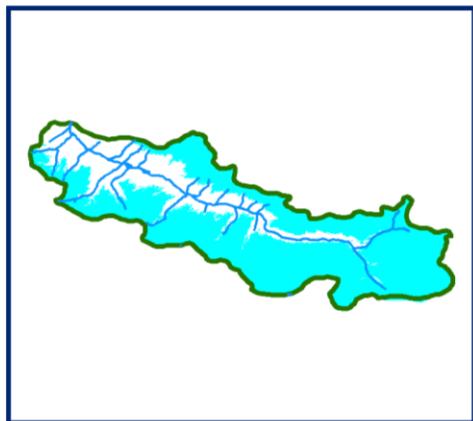
DATA NOT AVAILABLE



28 June 2014

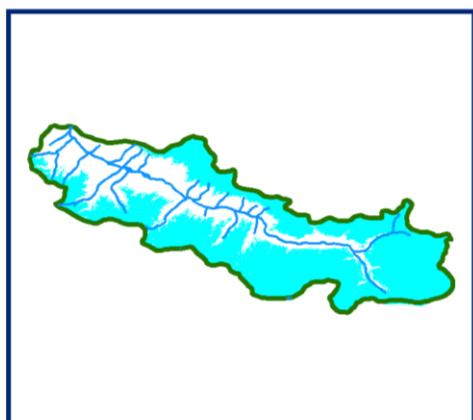


10 DAILY SNOW COVER MAP: BASPA BASIN



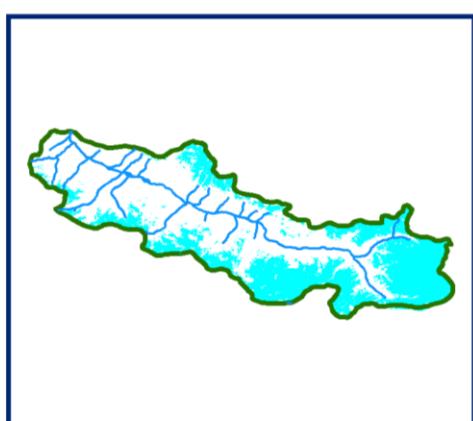
DATA USED

03 June 2014
04 June 2014
06 June 2014



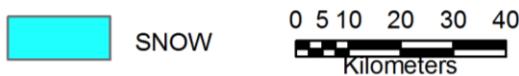
DATA USED

11 June 2014
13 June 2014
16 June 2014



DATA USED

28 June 2014



JIWA BASIN

AREAL EXTENT OF SNOW (5 DAILY)

BASIN NAME: JIWA

BASIN AREA: 1445 sq km

S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover
October 2013									
1.	04-10-2013	59	4	40%	4.	18-10-2013	51	4	20%
2.	09-10-2013	72	5	10%	5.	23-10-2013	92	6	Clear
3.	14-10-2013	108	7	10%					
November 2013									
1.	02-11-2013	131	9	Clear	4.	21-11-2013	341	24	Clear
2.	12-11-2013	504	35	Clear	5.	26-11-2013	279	19	Clear
3.	16-11-2013	411	28	Clear					
December 2013									
1.	01-12-2013	237	16	Clear	4.	20-12-2013	399	28	Clear
2.	10-12-2013	173	12	2%	5.	25-12-2013	527	36	Clear
3.	19-12-2013	69	5	Clear					
January 2014									
1.	20-01-2014	674	47	Clear	2.	23-01-2014	891	62	Clear
February 2014									
1.	01-02-2014	413	29	40%	3.	25-02-2014	627	43	Clear
2.	16-02-2014	1200	83	Clear					
March 2014									
1.	07-03-2014	672	46	Clear	4.	21-03-2014	596	41	30%
2.	12-03-2014	534	37	70%	5.	31-03-2014	605	42	Clear
3.	16-03-2014	609	42	Clear					
April 2014									
1.	05-04-2014	568	39	20%	5.	23-04-2014	395	27	30%
2.	09-04-2014	408	28	Clear	6.	24-04-2014	545	38	Clear
3.	12-04-2014	597	41	Clear	7.	26-04-2014	406	28	Clear
4.	14-04-2014	649	45	50%	8.	28-04-2014	543	38	50%
May 2014									
1.	01-05-2014	535	37	5%	5.	18-05-2014	164	11	90%
2.	03-05-2014	226	16	100%	6.	20-05-2014	313	22	50%
3.	08-05-2014	504	35	Clear	7.	25-05-2014	479	33	Clear
4.	16-05-2014	534	37	Clear					
June 2014									
1.	03-06-2014	430	30	Clear	5.	13-06-2014	363	25	Clear
2.	04-06-2014	411	28	Clear	6.	16-06-2014	286	20	30%
3.	06-06-2014	399	28	Clear	7.	28-06-2014	220	15	20%
4.	11-06-2014	340	24	2%					

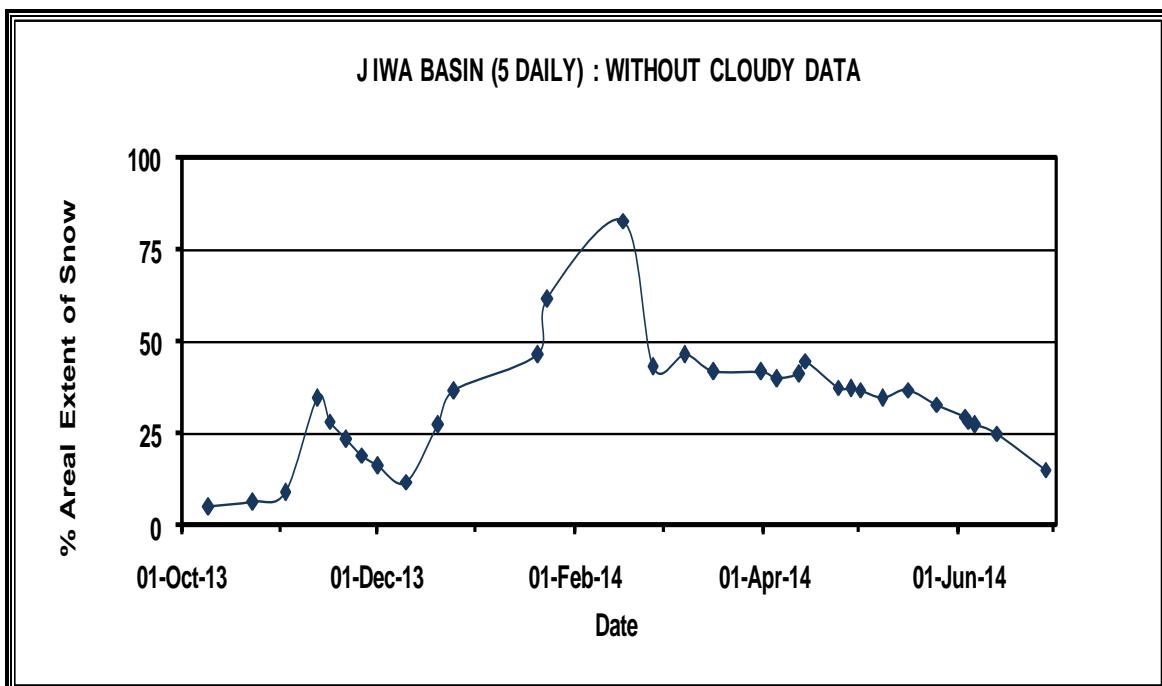
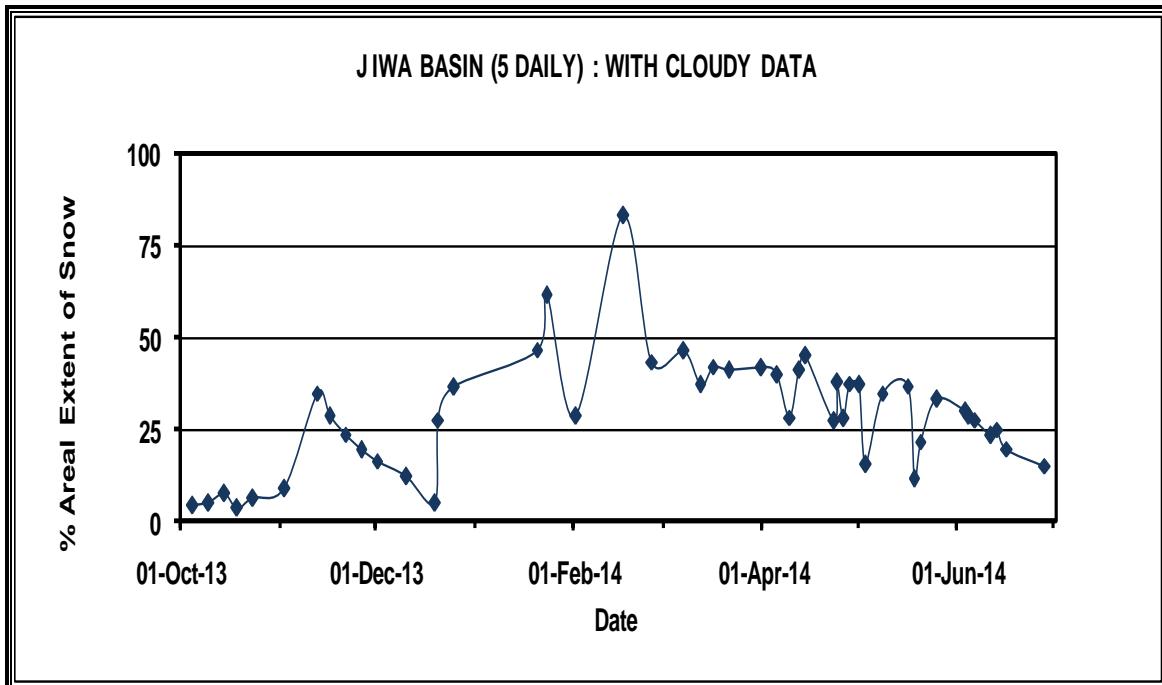
AREAL EXTENT OF SNOW (10 DAILY)

BASIN NAME: JIWA

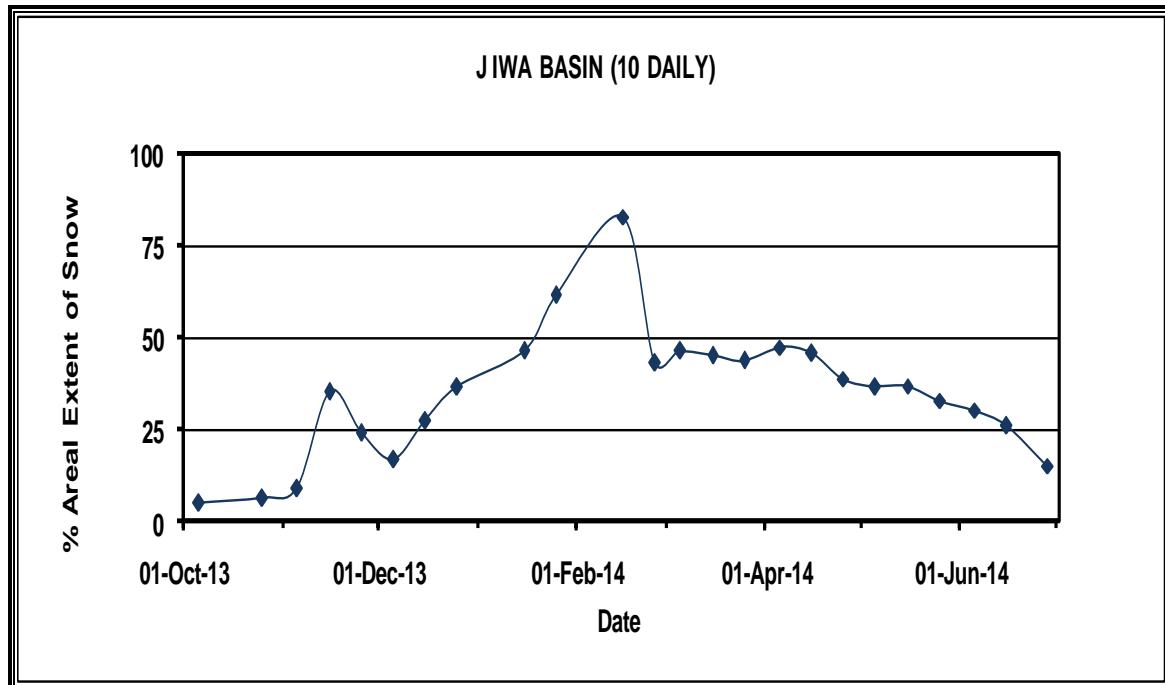
BASIN AREA: 1445 sq. km

S. No	Date	Snow cover (sq. km)	Snow cover (%)	Cloud cover	S. No	Date	Snow cover (sq. km)	Snow cover (%)	Cloud cover
October 2013									
1.	04-Oct-2013	72	5	40%	5.	23-Oct-2013	92	6	Clear
2.	09-Oct-2013			10%					
3.	14-Oct-2013	119	8	10%					
4.	18-Oct-2013			20%					
November 2013									
1.	02-Nov-2013	131	9	Clear	4.	21-Nov-2013	324	22	Clear
2.	12-Nov-2013	512	35	Clear	5.	26-Nov-2013			Clear
3.	16-Nov-2013			Clear					
December 2013									
1.	01-Dec-2013	244	17	Clear	5.	25-Dec-2013	528	37	Clear
2.	10-Dec-2013			2%					
3.	19-Dec-2013	399	28	Clear					
4.	20-Dec-2013			Clear					
January 2014									
1.	20-Jan-2014	673	47	Clear	2.	23-Jan-2014	891	62	Clear
February 2014									
1.	01-Feb-2014	413	29	40%	3.	25-Feb-2014	627	43	Clear
2.	16-Feb-2014	1199	83	Clear					
March 2014									
1.	07-March-2014	672	46	Clear	4.	21-March-2014	635	44	30%
2.	12-March-2014	655	45	70%	5.	31-March-2014			Clear
3.	16-March-2014			Clear					
April 2014									
1.	05-April-2014	685	47	20%	5.	23-April-2014	563	39	30%
2.	09-April-2014			Clear	6.	24-April-2014			Clear
3.	12-April-2014	661	46	Clear	7.	26-April-2014			Clear
4.	14-April-2014			50%					
May 2014									
1.	01-May-2014	533	37	5%	5.	25-May-2014	479	33	Clear
2.	08-May-2014			Clear					
3.	16-May-2014	534	37	Clear					
4.	20-May-2014			50%					
June 2014									
1.	03-June-2014	440	30	Clear	3.	13-June-2014	381	26	Clear
2.	04-June-2014			Clear	4.	16-June-2014			30%

Snow cover depletion curve

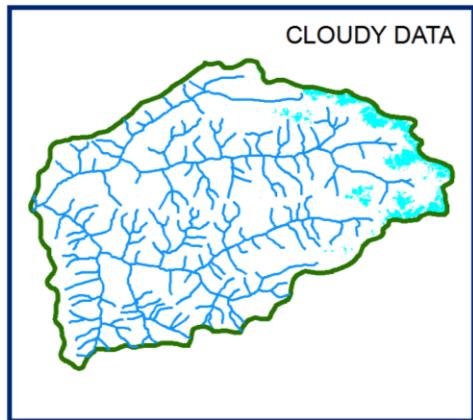


Snow cover depletion curve

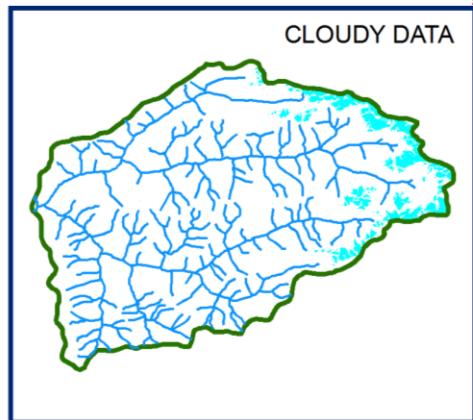


SNOW COVER MAP

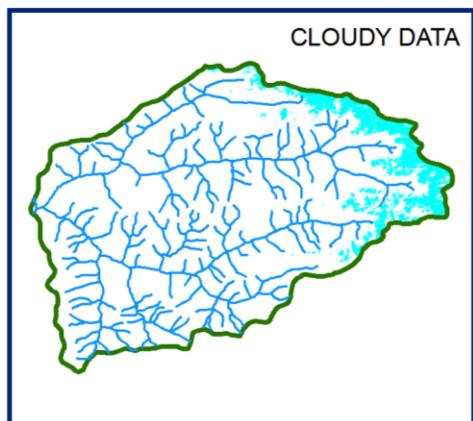
SNOW COVER MAP : JIWA BASIN



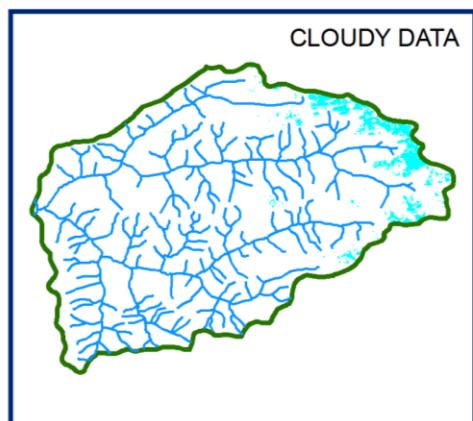
04 Oct 2013



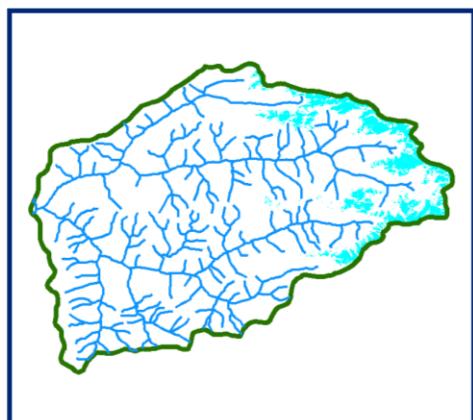
09 Oct 2013



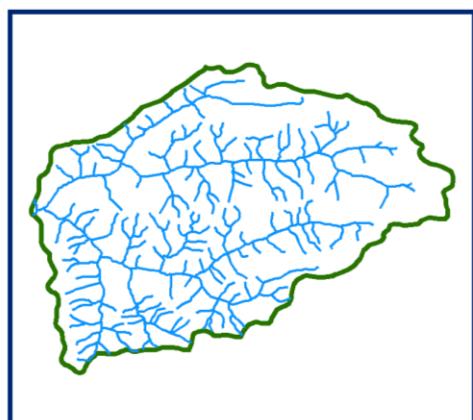
14 Oct 2013



18 Oct 2013



23 Oct 2013



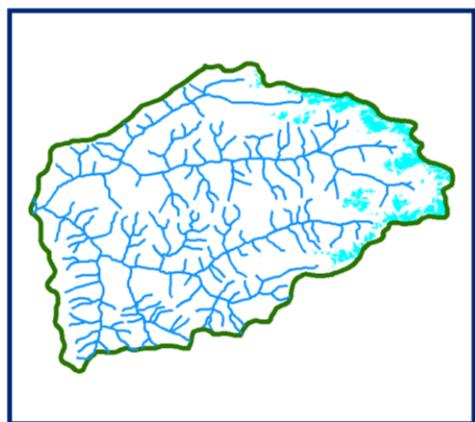
DATA NOT AVAILABLE



SNOW

03.57 14 21 28
Kilometers

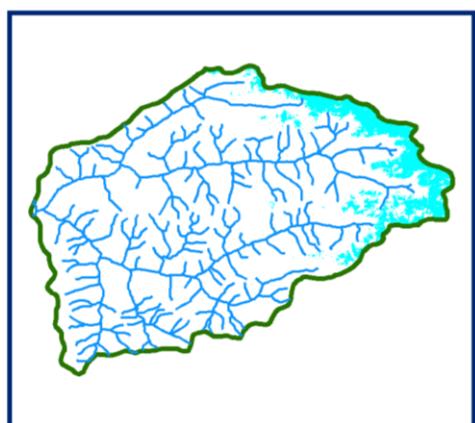
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED

04 Oct 2013

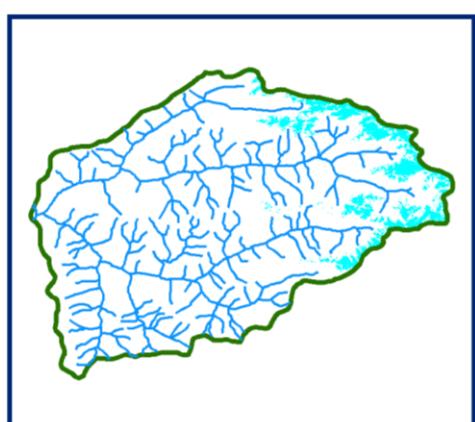
09 Oct 2013



DATA USED

14 Oct 2013

18 Oct 2013



DATA USED

23 Oct 2013



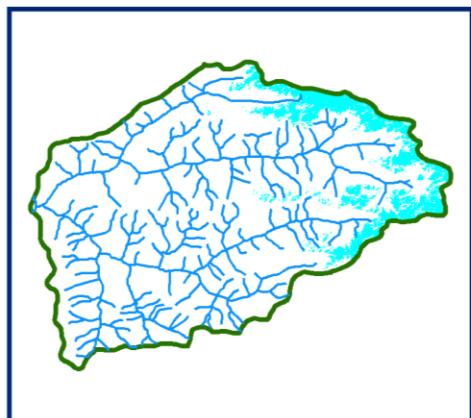
SNOW

024 8 1216

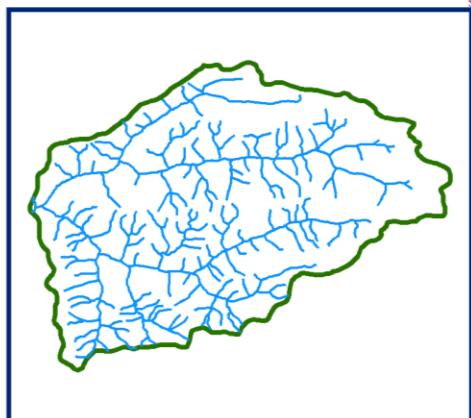


SNOW COVER MAP

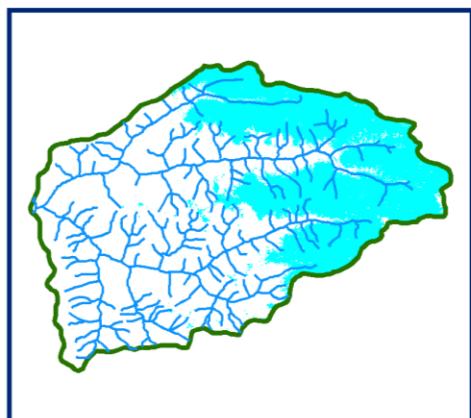
: JIWA BASIN



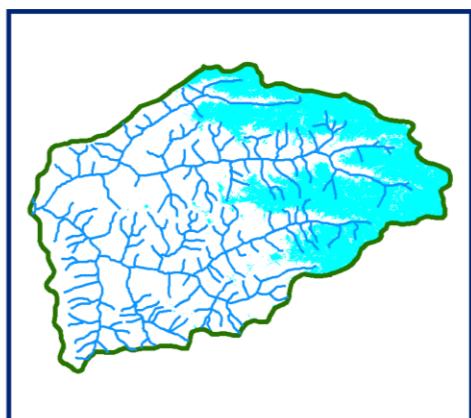
02 Nov 2013



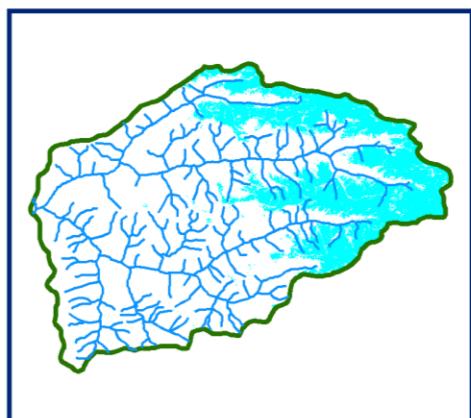
DATA NOT AVAILABLE



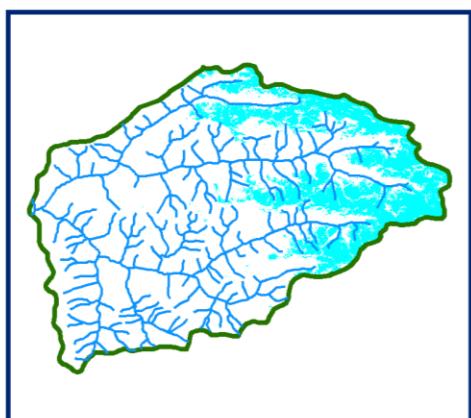
12 Nov 2013



16 Nov 2013



21 Nov 2013



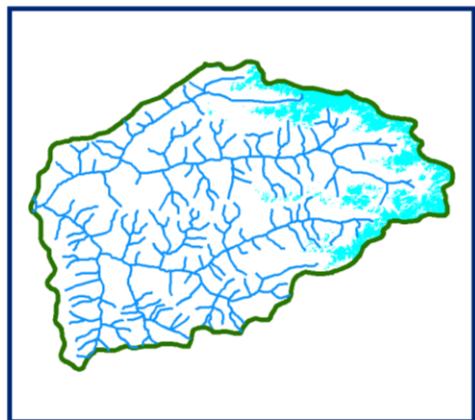
26 Nov 2013



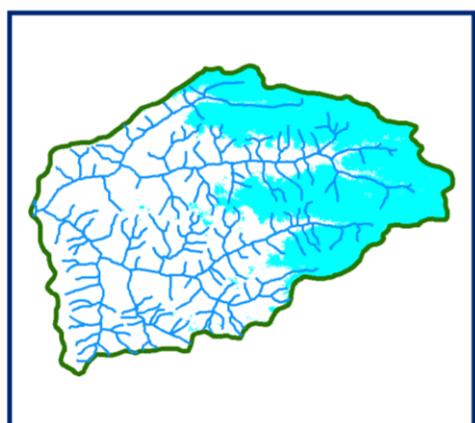
SNOW

03.57 14 21 28
A scale bar showing distances of 0, 3.57, 14, 21, and 28 Kilometers.

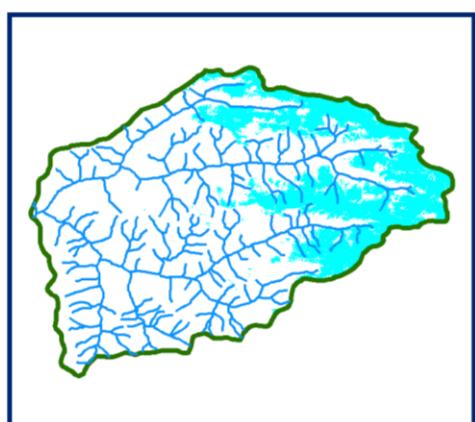
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED
02 Nov 2013



DATA USED
12 Nov 2013
16 Nov 2013



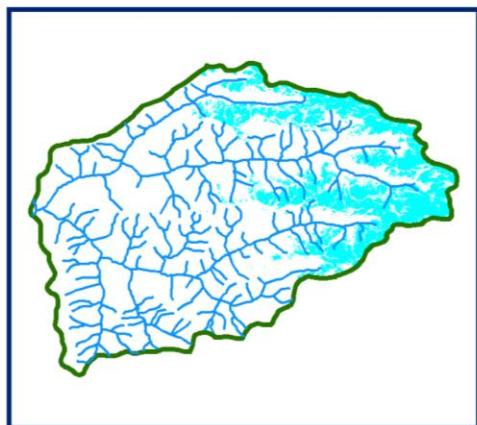
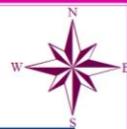
DATA USED
21 Nov 2013
26 Nov 2013



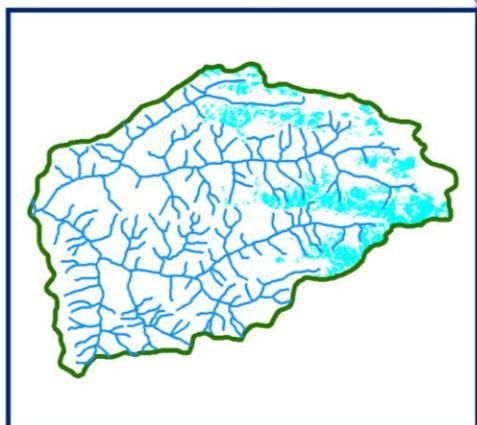
SNOW

024 8 1216
Kilometers

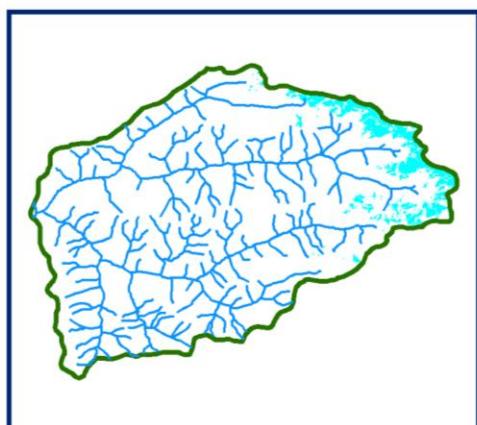
SNOW COVER MAP : JIWA BASIN



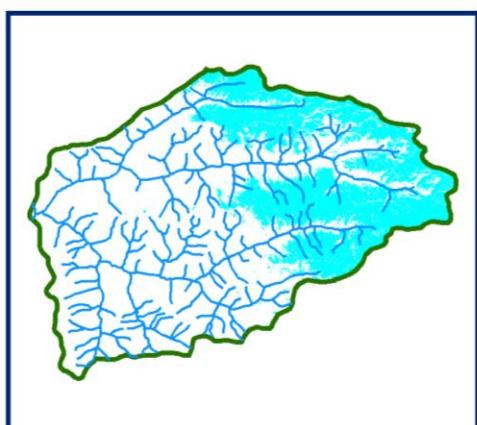
01 Dec 2013



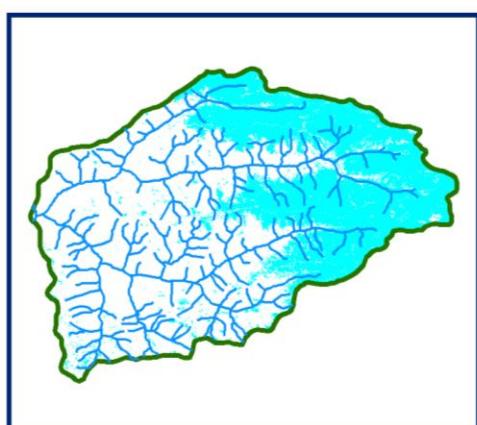
10 Dec 2013



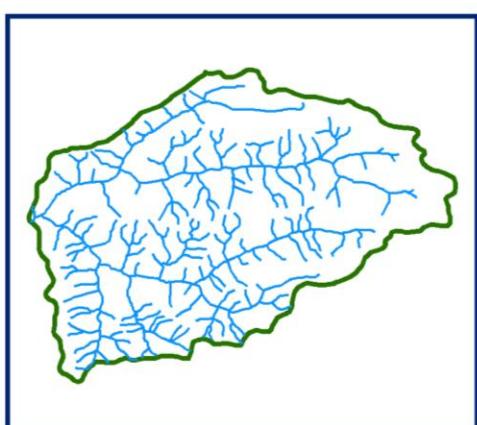
19 Dec 2013



20 Dec 2013



25 Dec 2013

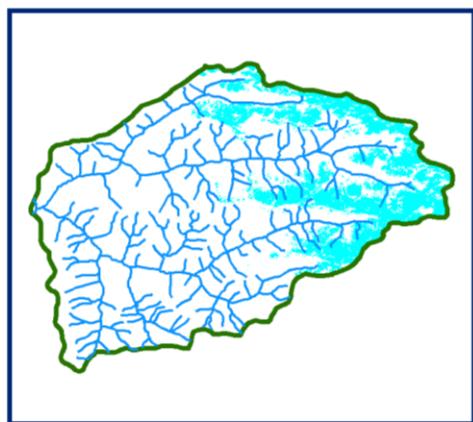


DATA NOT AVAILABLE



03.57 14 21 28
Kilometers

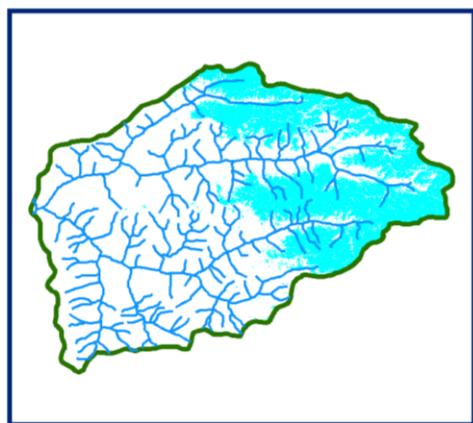
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED

01 Dec 2013

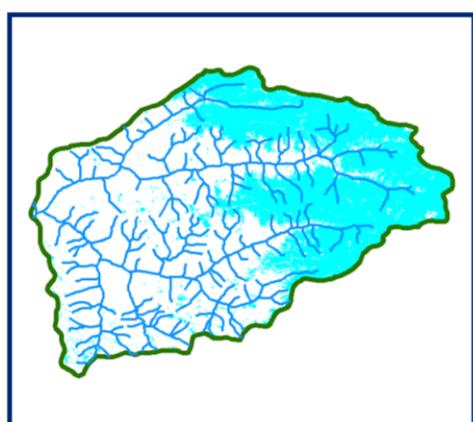
10 Dec 2013



DATA USED

19 Dec 2013

20 Dec 2013



DATA USED

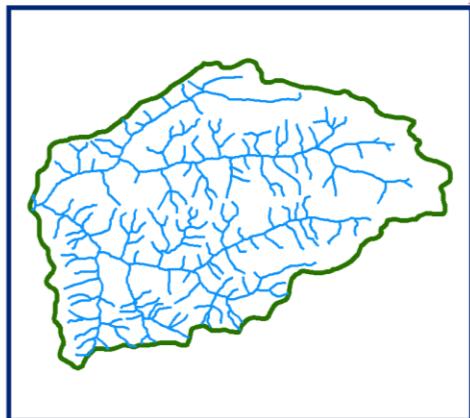
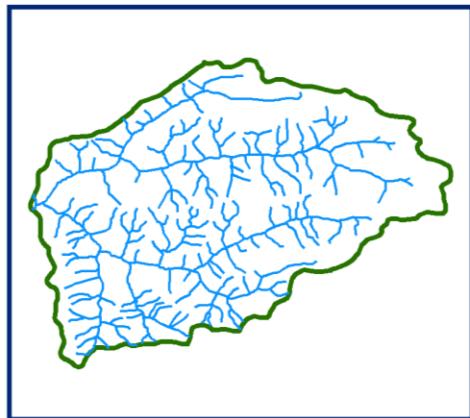
25 Dec 2013



SNOW

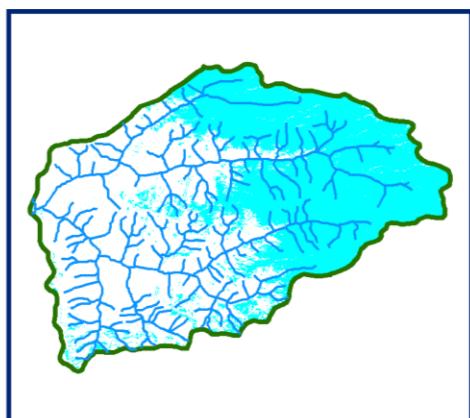
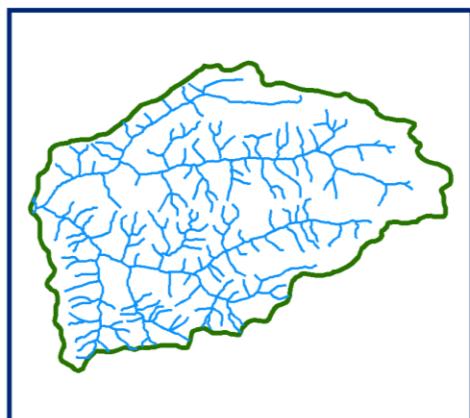
024 8 1216
 Kilometers

SNOW COVER MAP : JIWA BASIN



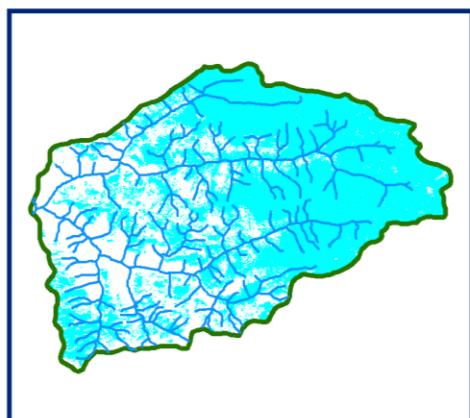
DATA NOT AVAILABLE

DATA NOT AVAILABLE

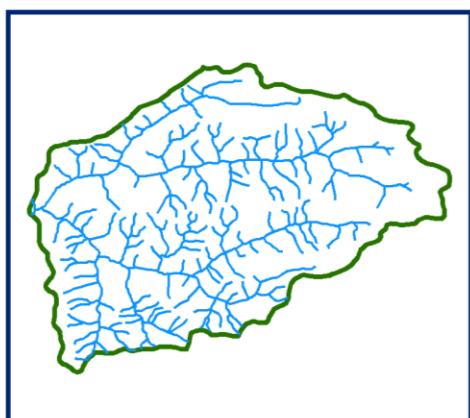


DATA NOT AVAILABLE

20 Jan 2014



23 Jan 2014



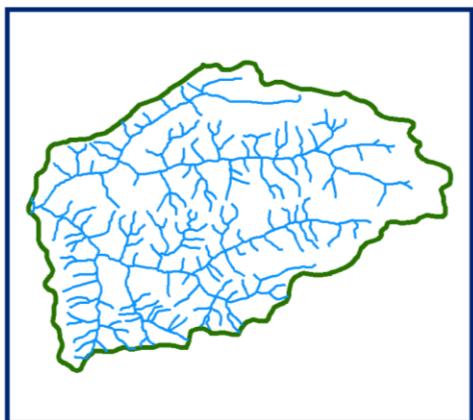
DATA NOT AVAILABLE



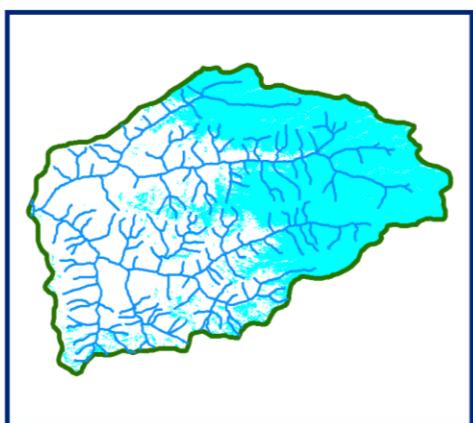
SNOW

03.57 14 21 28
A scale bar showing distances from 0 to 28 Kilometers, with intermediate tick marks at 14, 21, and 28.

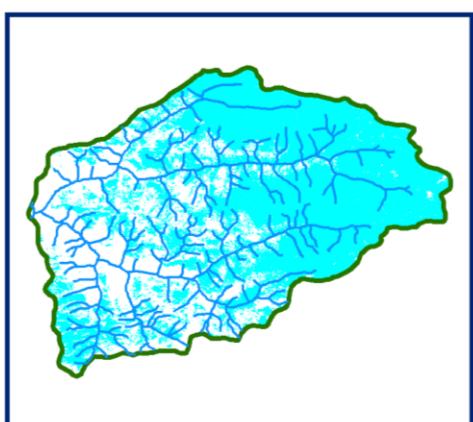
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED
DATA NOT AVAILABLE



DATA USED
20 Jan 2014



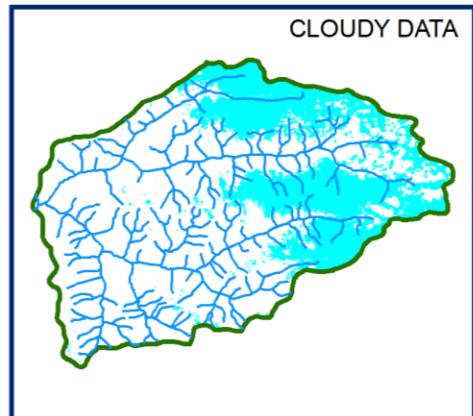
DATA USED
23 Jan 2014



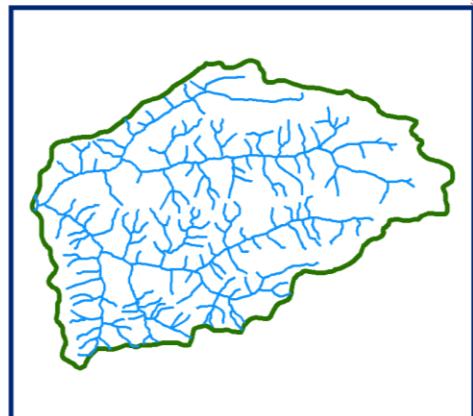
SNOW

024 8 1216
 Kilometers

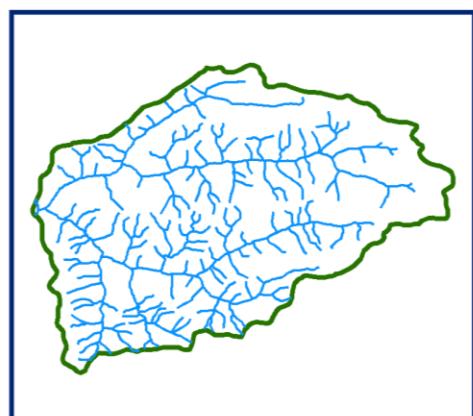
SNOW COVER MAP : JIWA BASIN



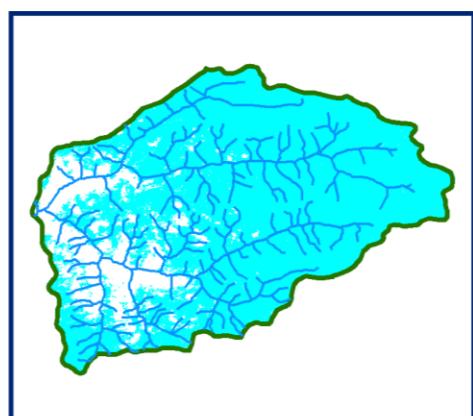
01 Feb 2014



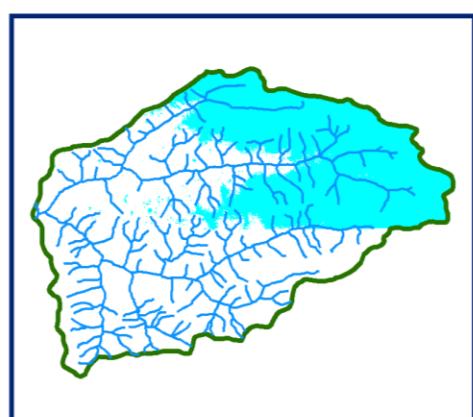
DATA NOT AVAILABLE



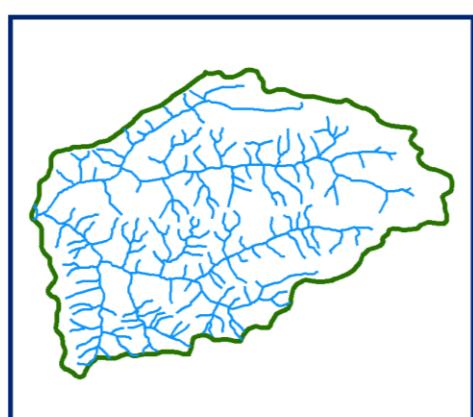
DATA NOT AVAILABLE



16 Feb 2014



25 Feb 2014



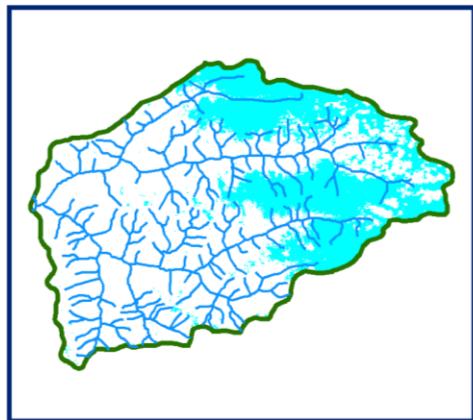
DATA NOT AVAILABLE



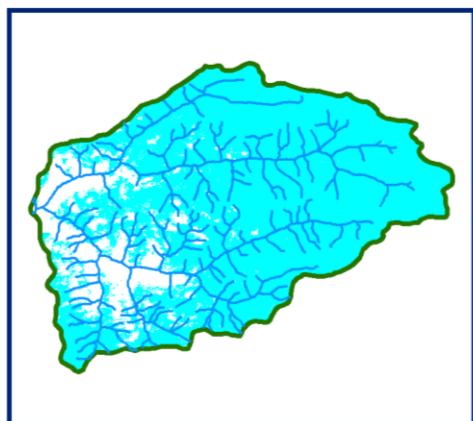
SNOW

03.57 14 21 28
Kilometers

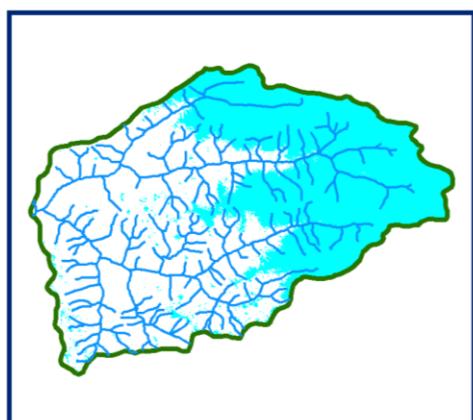
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED
01 Feb 2014



DATA USED
16 Feb 2014



DATA USED
25 Feb 2014

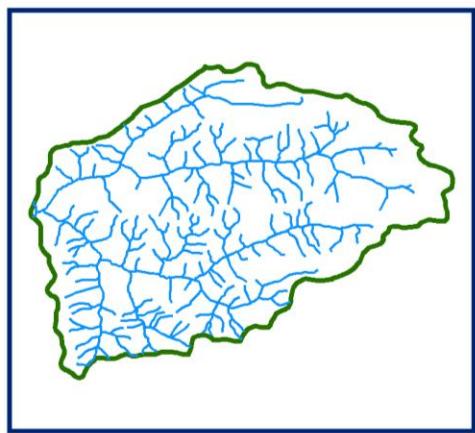


SNOW

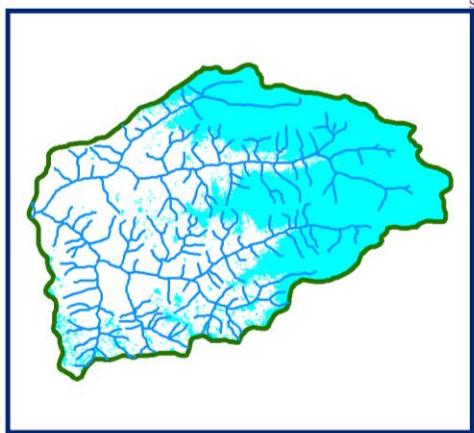
024 8 1216
Kilometers

SNOW COVER MAP

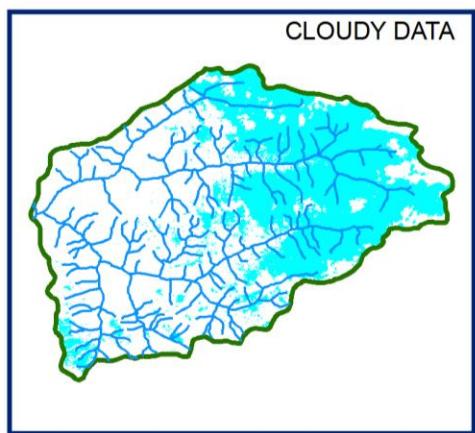
: JIWA BASIN



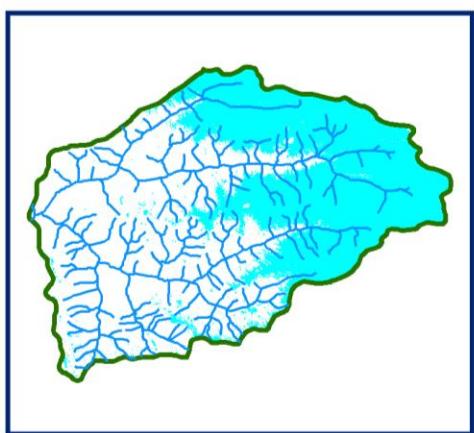
DATA NOT AVAILABLE



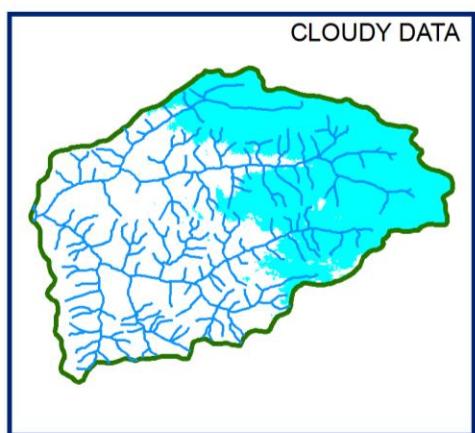
07 March 2014



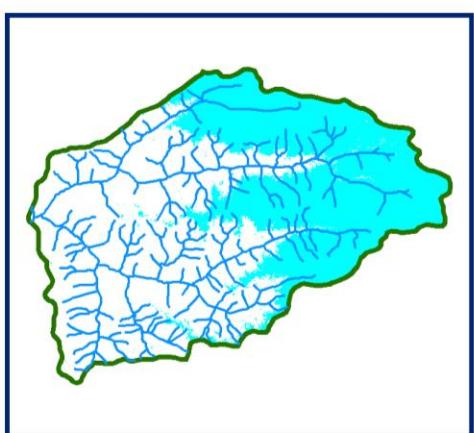
12 March 2014



16 March 2014



21 March 2014



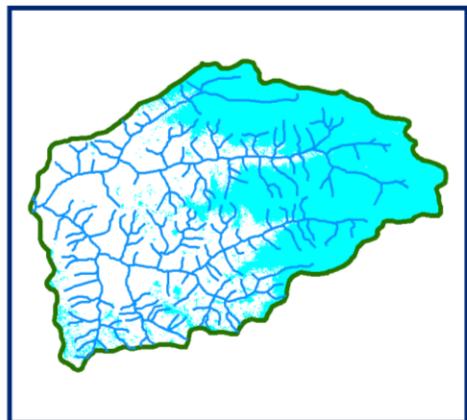
31 March 2014

SNOW

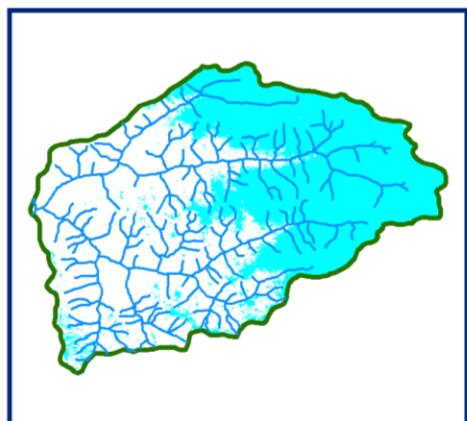
03.57 14 21 28

Kilometers

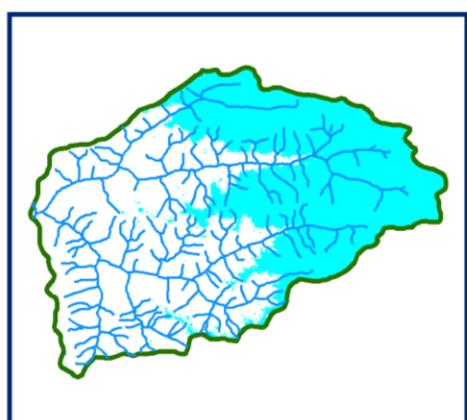
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED
07 March 2014



DATA USED
12 March 2014
16 March 2014

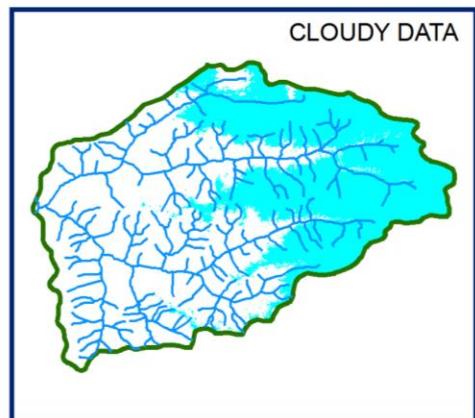


DATA USED
21 March 2014
31 March 2014

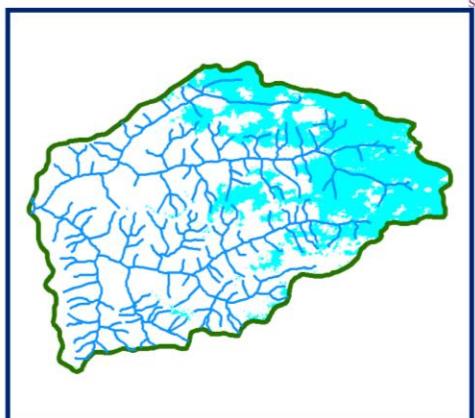


0.5 6 912
Kilometers

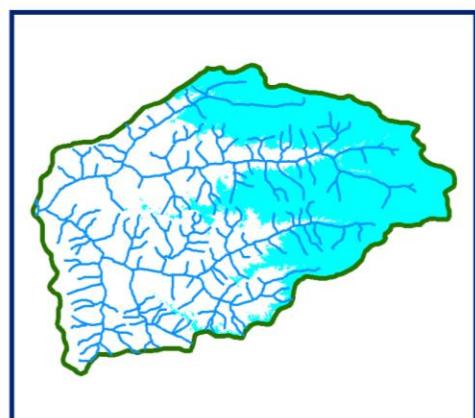
SNOW COVER MAP : JIWA BASIN



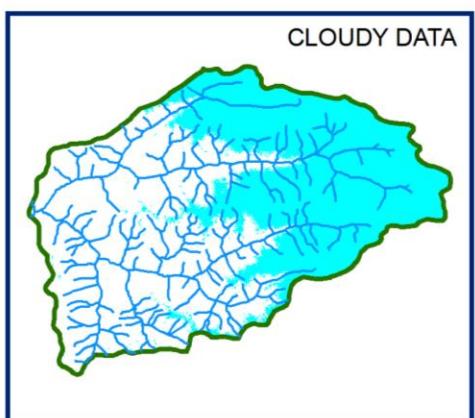
05 April 2014



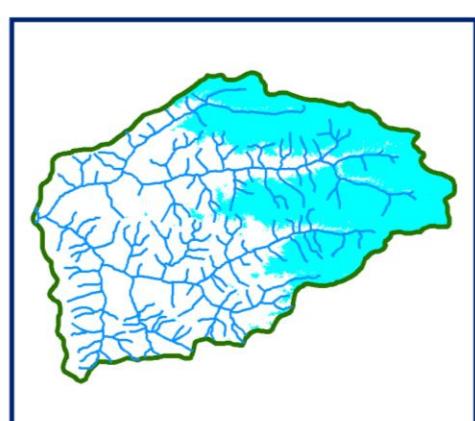
09 April 2014



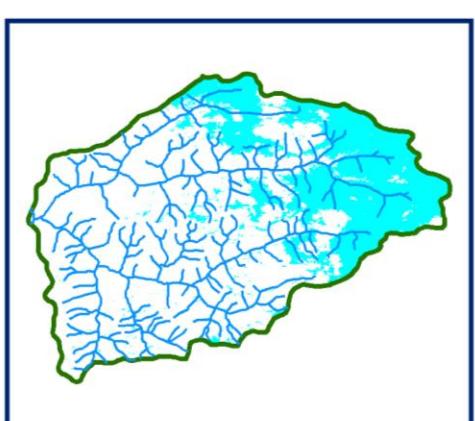
12 April 2014



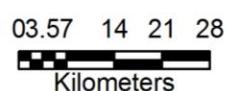
14 April 2014



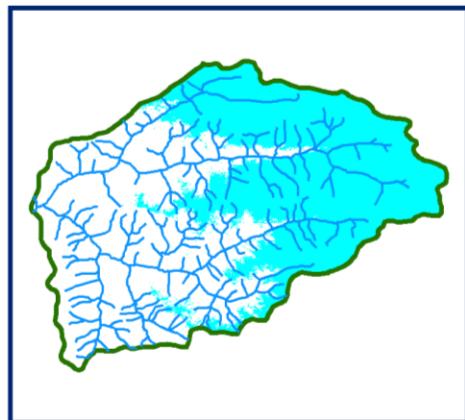
24 April 2014



26 April 2014



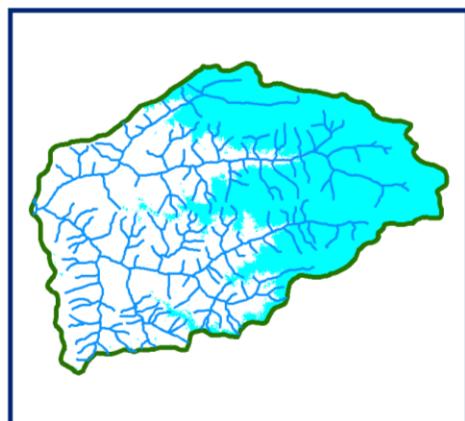
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED

05 April 2014

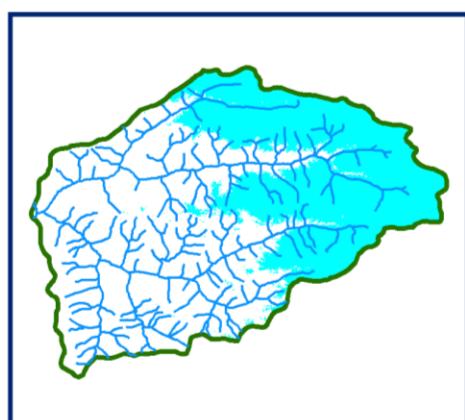
09 April 2014



DATA USED

12 April 2014

14 April 2014



DATA USED

23 April 2014

24 April 2014

26 April 2014

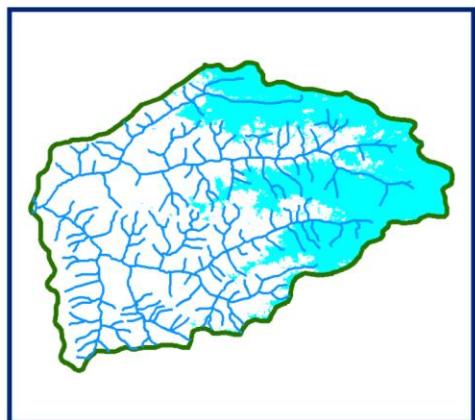


0.5 6 912
 Kilometers

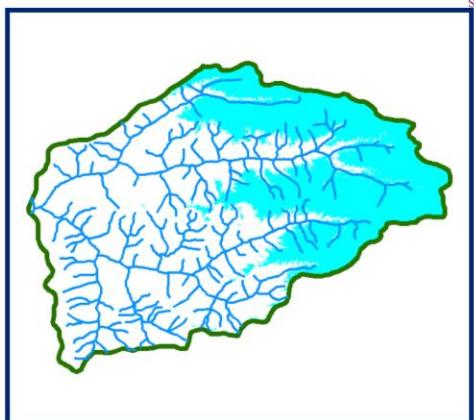
A scale bar at the bottom left with markings for 0.5, 1, 2, and 6 kilometers, followed by the text "Kilometers".

SNOW COVER MAP

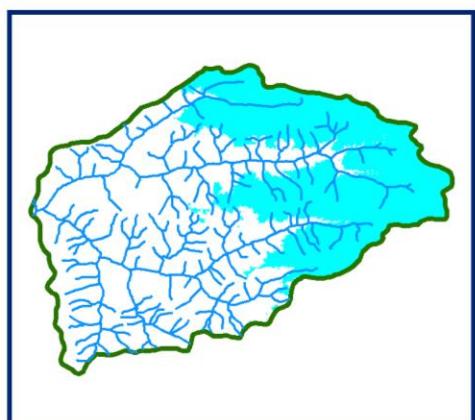
: JIWA BASIN



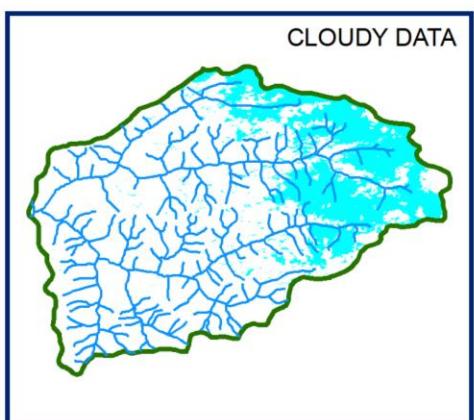
01 May 2014



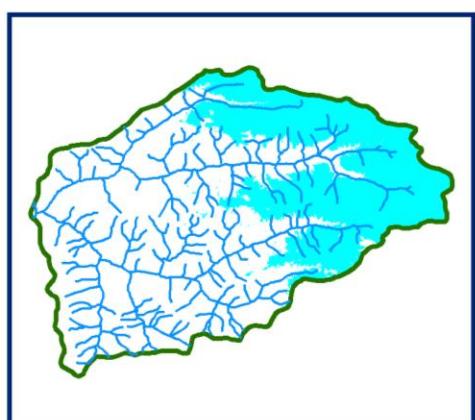
08 May 2014



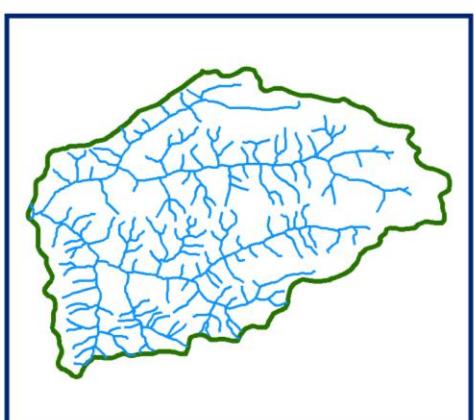
16 May 2014



CLOUDY DATA
20 May 2014



25 May 2014



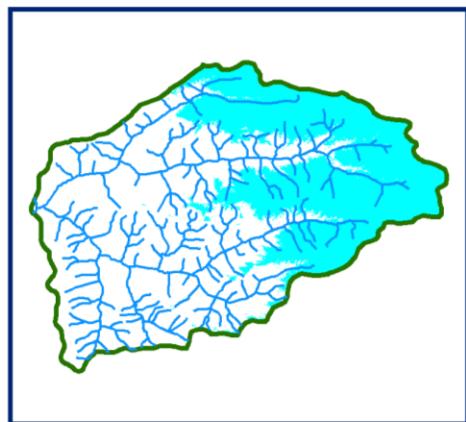
DATA NOT AVAILABLE



SNOW

03.57 14 21 28
Kilometers

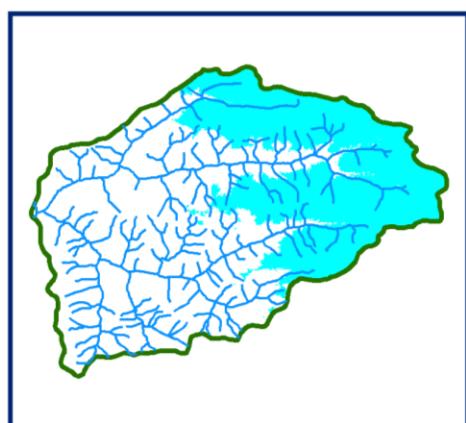
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED

01 May 2014

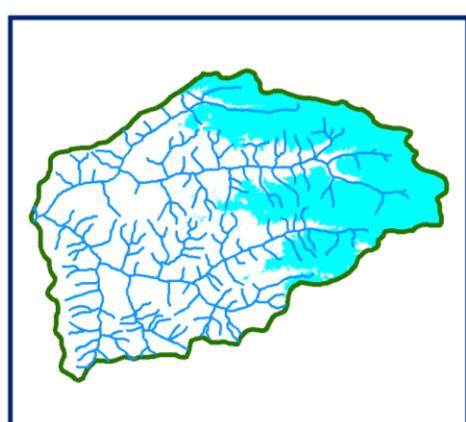
08 May 2014



DATA USED

16 May 2014

20 May 2014



DATA USED

25 May 2014

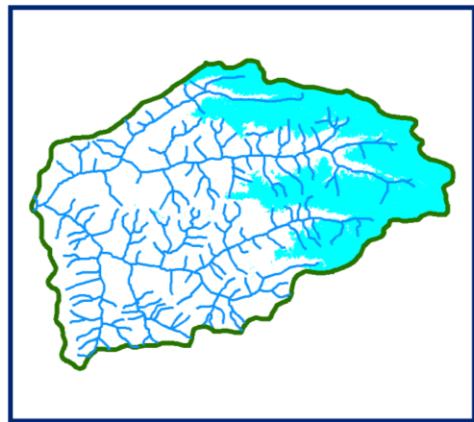


SNOW

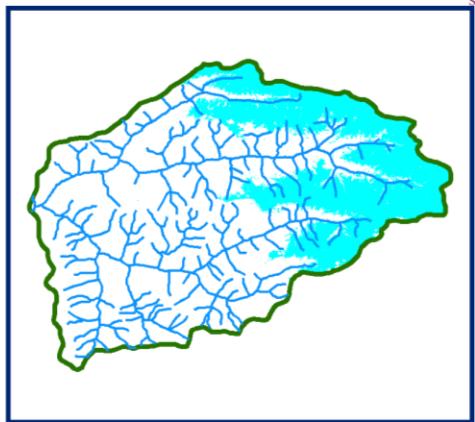
0.5 6 912

Kilometers

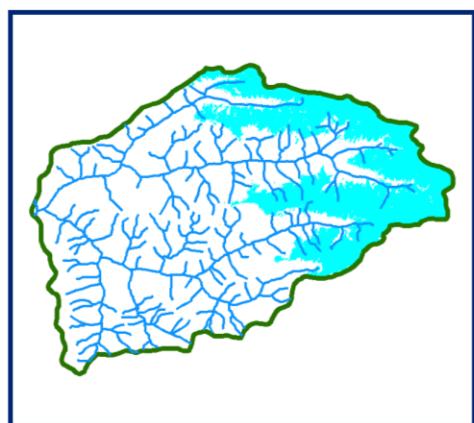
SNOW COVER MAP : JIWA BASIN



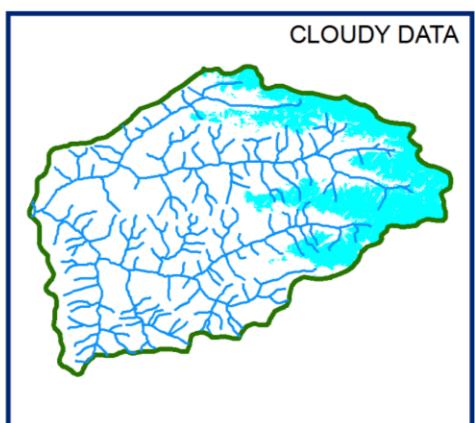
03 June 2014



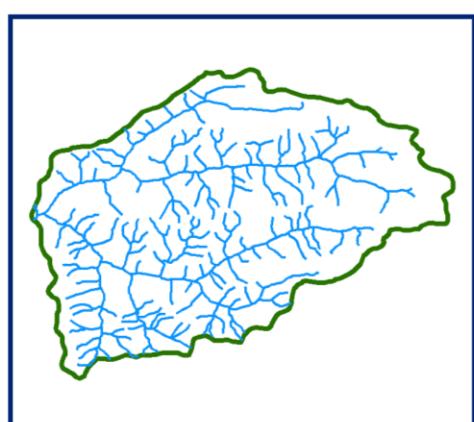
06 June 2014



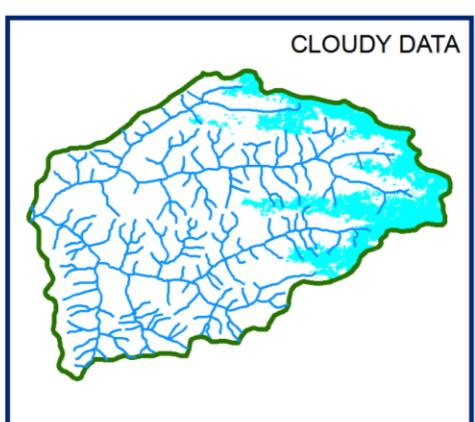
13 June 2014



16 June 2014



DATA NOT AVAILABLE



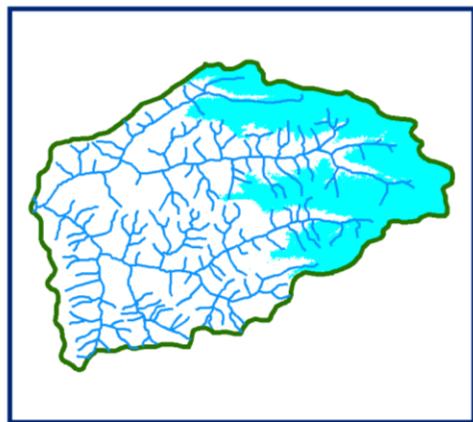
28 June 2014



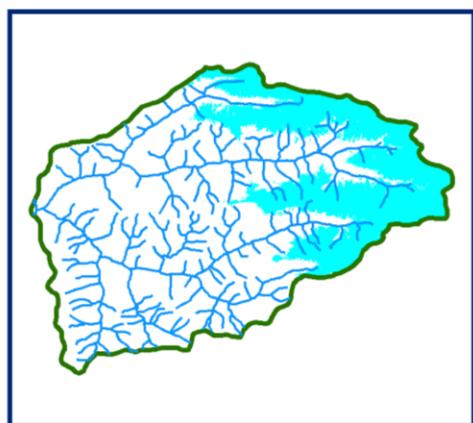
SNOW

03.57 14 21 28
Kilometers

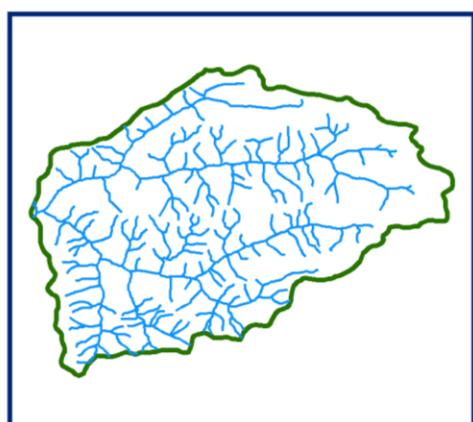
10 DAILY SNOW COVER MAP: JIWA BASIN



DATA USED
03 June 2014
06 June 2014



DATA USED
13 June 2014
16 June 2014



DATA USED
DATA NOT AVAILABLE



SNOW

0.5 6 912
Kilometers

PARBATI BASIN

AREAL EXTENT OF SNOW (5 DAILY)

BASIN NAME: PARBATI

BASIN AREA: 1773 sq km

S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover
October 2013									
1.	04-10-2013	341	19	30%	4.	16-10-2013	577	33	Clear
2.	09-10-2013	329	19	5%	5.	18-10-2013	429	24	5%
3.	14-10-2013	695	39	10%	6.	23-10-2013	430	24	Clear
November 2013									
1.	02-11-2013	735	41	Clear	5.	21-11-2013	1073	60	Clear
2.	12-11-2013	1284	72	Clear	6.	26-11-2013	929	52	Clear
3.	16-11-2013	1182	67	Clear	7.	30-11-2013	864	49	Clear
4.	16-11-2013	1184	67	Clear					
December 2013									
1.	01-12-2013	785	44	Clear	5.	20-12-2013	919	52	Clear
2.	10-12-2013	211	12	60%	6.	24-12-2013	1363	77	Clear
3.	15-12-2013	747	42	Clear	7.	25-12-2013	1263	71	Clear
4.	19-12-2013	453	26	Clear					
January 2014									
1.	03-01-2014	1058	60	Clear	3.	23-01-2014	1509	85	Clear
2.	20-01-2014	1432	81	Clear	4.	27-01-2014	1367	77	Clear
February 2014									
1.	01-02-2014	1195	67	30%	4.	25-02-2014	1434	81	Clear
2.	16-02-2014	1718	97	Clear	5.	25-02-2014	1442	81	Clear
3.	20-02-2014	1127	64	30%					
March 2014									
1.	06-03-2014	1539	87	Clear	5.	21-03-2014	1400	79	40%
2.	07-03-2014	1465	83	Clear	6.	30-03-2014	1427	80	Clear
3.	12-03-2014	1448	82	90%	7.	31-03-2014	1394	79	Clear
4.	16-03-2014	1411	80	Clear					
April 2014									
1.	02-04-2014	1533	86	5%	6.	23-04-2014	1312	74	5%
2.	05-04-2014	1311	74	20%	7.	24-04-2014	1337	75	Clear
3.	09-04-2014	1347	76	2%	8.	26-04-2014	1316	74	Clear
4.	12-04-2014	1379	78	Clear	9.	28-04-2014	1336	75	Clear
5.	14-04-2014	1393	79	Clear					
May 2014									
1.	01-05-2014	1291	73	Clear	5.	20-05-2014	1201	68	20%

2.	03-05-2014	1190	67	10%	6.	22-05-2014	1269	72	Clear
3.	08-05-2014	1284	72	Clear	7.	25-05-2014	1256	71	Clear
4.	18-05-2014	517	29	100%	8.	27-05-2014	1205	68	Clear

June 2014

1.	03-06-2014	1218	69	Clear	6.	13-06-2014	1107	62	10%
2.	04-06-2014	1174	66	Clear	7.	16-06-2014	1024	58	Clear
3.	06-06-2014	1162	66	Clear	8.	20-06-2014	1114	63	Clear
4.	10-06-2014	990	56	Clear	9.	28-06-2014	832	50	5%
5.	11-06-2014	1086	61	Clear					

AREAL EXTENT OF SNOW (10 DAILY)

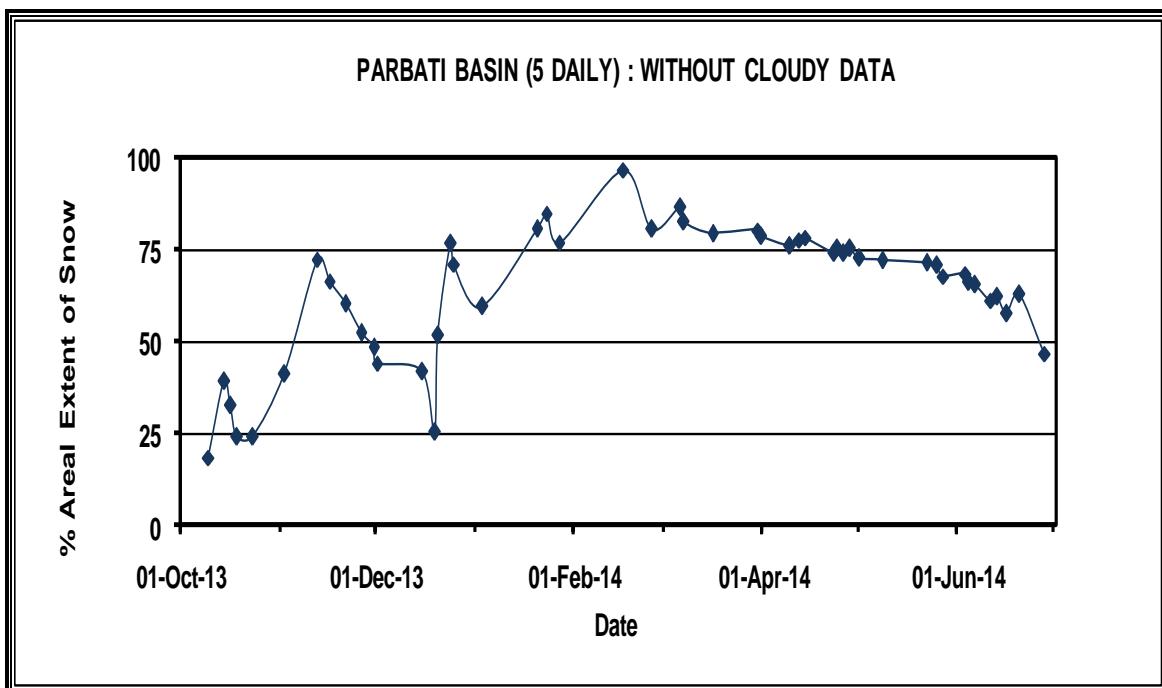
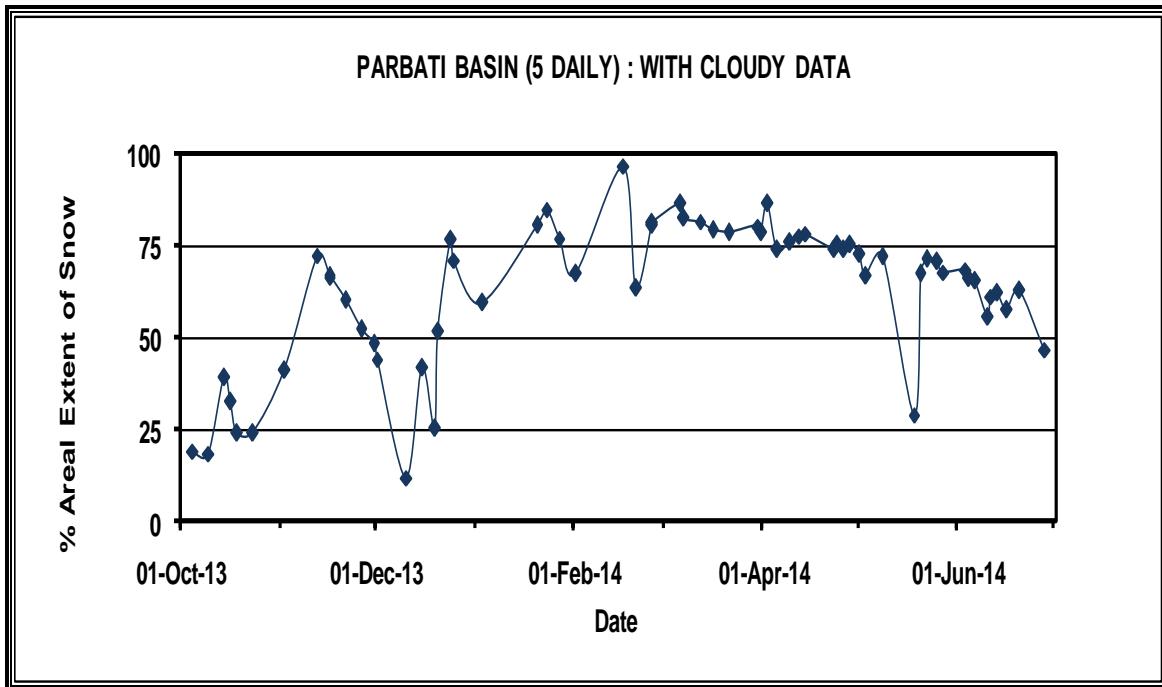
BASIN NAME: PARBATI

BASIN AREA: 1737 sq km

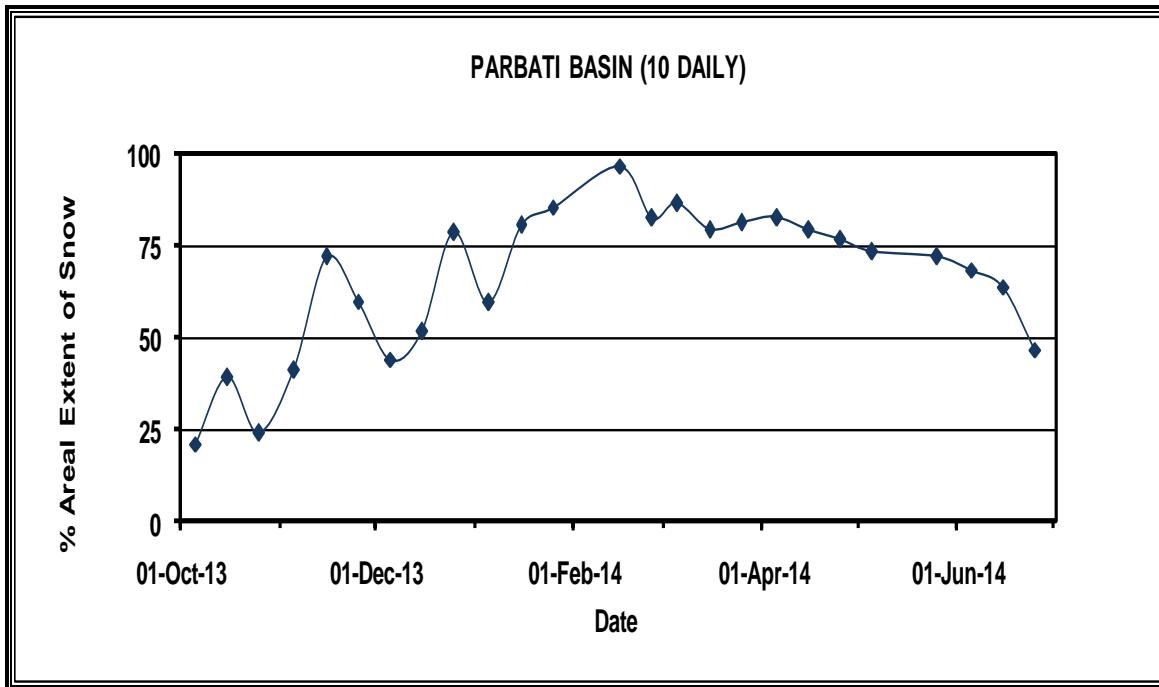
S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud cover
October 2013									
1.	04-Oct-2013	376	21	30%	6.	23-Oct-2013	430	24	Clear
2.	09-Oct-2013			5%					
3.	14-Oct-2013	696	39	10%					
4.	16-Oct-2013			Clear					
5.	18-Oct-2013			5%					
November 2013									
1.	02-Nov-2013	735	41	Clear	4.	21-Nov-2013	998	56	Clear
2.	12-Nov-2013	1230	69	Clear	5.	26-Nov-2013			Clear
3.	16-Nov-2013			Clear	6.	30-Nov-2013			Clear
December 2013									
1.	01-Dec-2013	786	44	Clear	5.	24-Dec-2013	1396	79	Clear
2.	15-Dec-2013	614	35	Clear	6.	25-Dec-2013			Clear
3.	19-Dec-2013			Clear					
4.	20-Dec-2013			Clear					
January 2014									
1.	03-Jan-2014	1059	60	Clear	3.	23-Jan-2014	1520	86	Clear
2.	20-Jan-2014	1431	81	Clear	4.	27-Jan-2014			Clear
February 2014									
1.	01-Feb-2014	1195	67	30%	4.	25-Feb-2014	1464	83	Clear
2.	16-Feb-2014	1718	97	Clear					
3.	20-Feb-2014			30%					
March 2014									
1.	06-March-2014	1538	87	Clear	4.	21-March-2014	1444	81	40%
2.	07-March-2014			Clear	5.	30-March-2014			Clear
3.	16-March-2014	1411	80	Clear	6.	31-March-2014			Clear
April 2014									
1.	02-April-2014	1470	83	5%	6.	23-April-2014	1364	77	5%
2.	05-April-2014			20%	7.	24-April-2014			Clear
3.	09-April-2014			2%	8.	28-April-2014			Clear
4.	12-April-2014	1409	79	Clear					
5.	14-April-2014			Clear					
May 2014									
1.	01-May-2014	1307	74	Clear	5.	22-May-2014	1279	72	Clear
2.	03-May-2014			10%	6.	25-May-2014			Clear

3.	08-May-2014			Clear	7.	27-May-2014				Clear
4.	20-May-2014	1202	67.783982	20%						
June 2014										
1.	03-June-2014	1216	69	Clear	7.	28-June-2014	832	47	5%	
2.	06-June-2014			Clear						
3.	10-June-2014			Clear						
4.	11-June-2014	1136	64	Clear						
5.	16-June-2014			Clear						
6.	20-June-2014			Clear						

Snow cover depletion curve

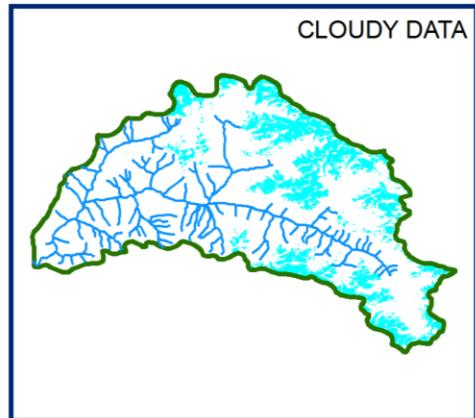


Snow cover depletion curve

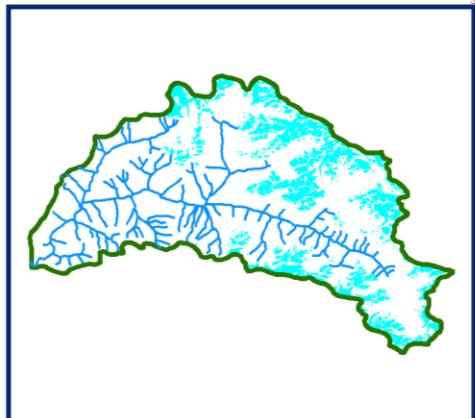


SNOW COVER MAP

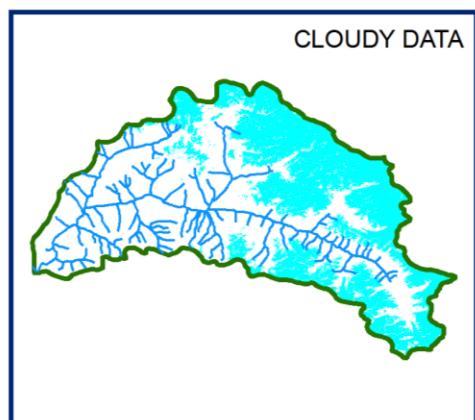
SNOW COVER MAP : PARBATI BASIN



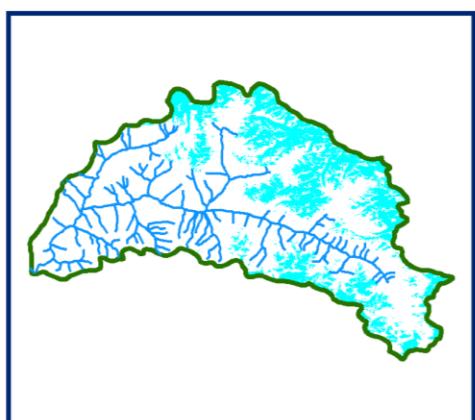
04 Oct 2013



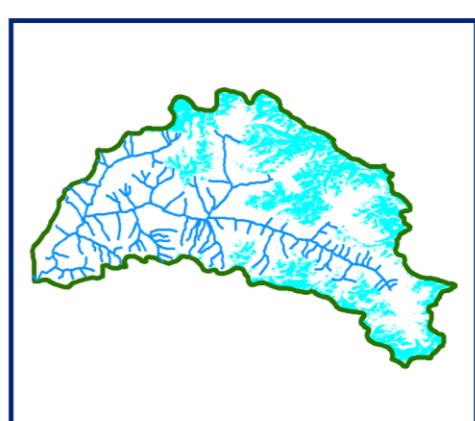
09 Oct 2013



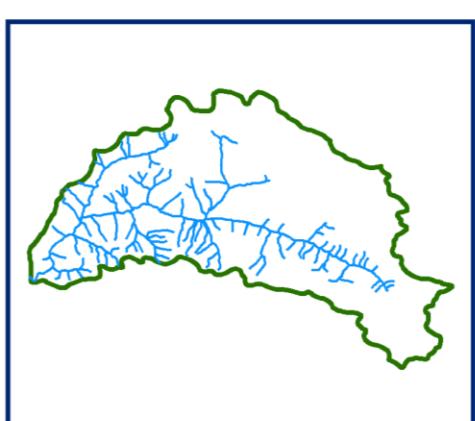
14 Oct 2013



18 Oct 2013



23 Oct 2013



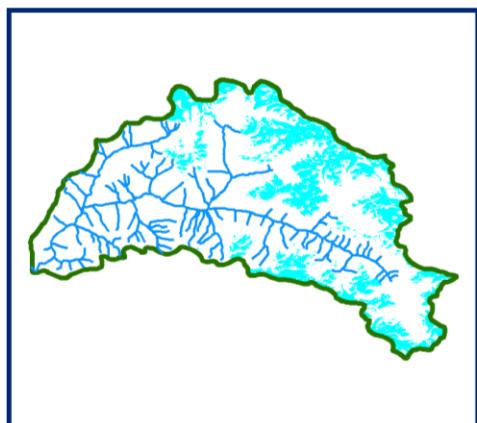
DATA NOT AVAILABLE



SNOW

04.59 18 27 36
Kilometers

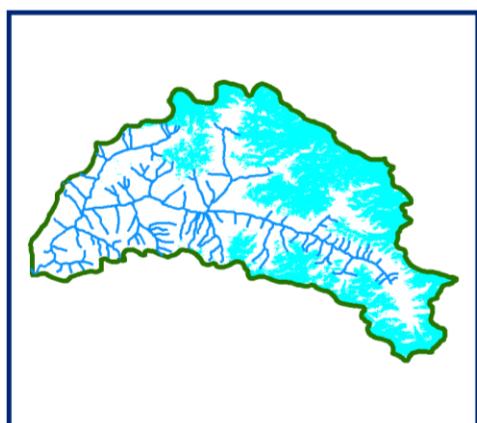
10 DAILY SNOW COVER MAP: PARBATI BASIN



DATA USED

04 Oct 2013

09 Oct 2013

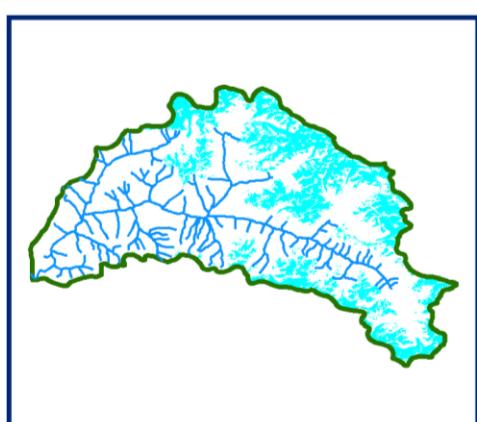


DATA USED

14 Oct 2013

16 Oct 2013

18 Oct 2013



DATA USED

23 Oct 2013

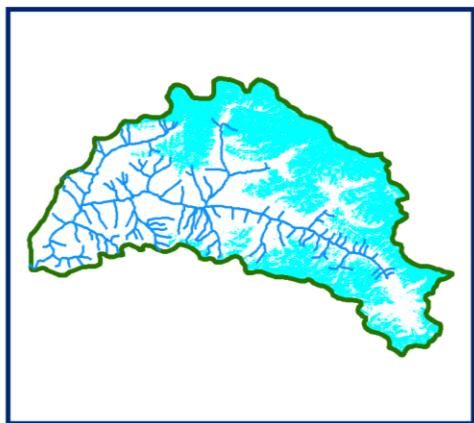


SNOW

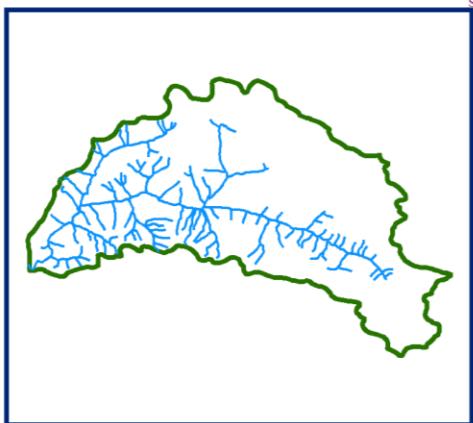
04.59 18 27 36
Kilometers

SNOW COVER MAP

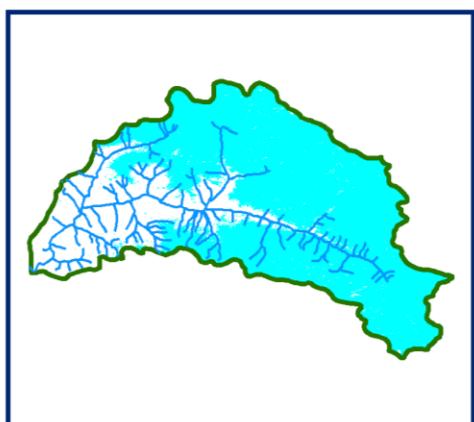
: PARBATI BASIN



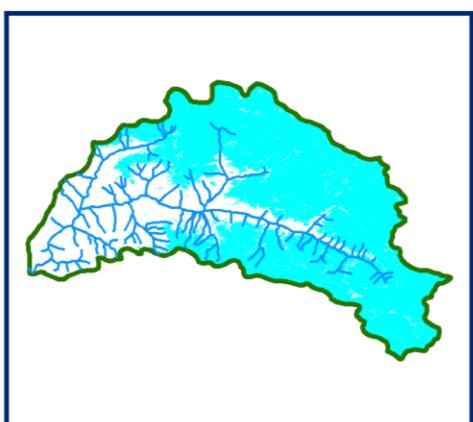
02 Nov 2013



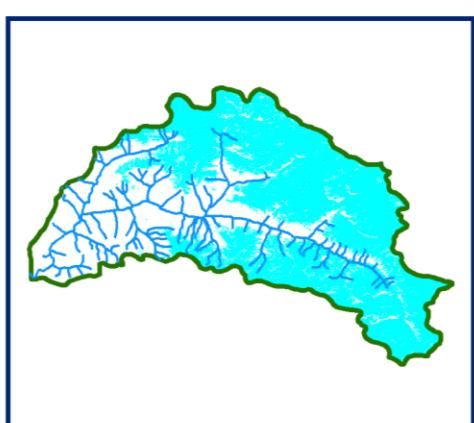
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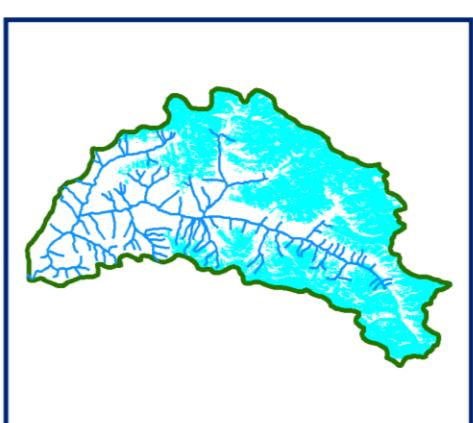
12 Nov 2013



16 Nov 2013



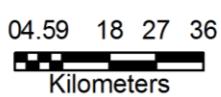
21 Nov 2013



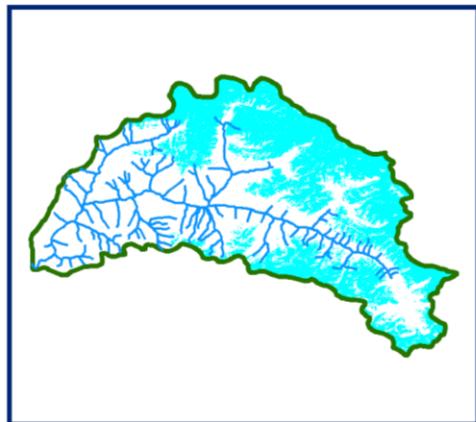
30 Nov 2013



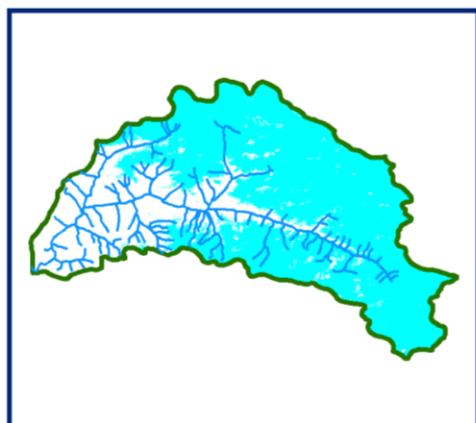
SNOW



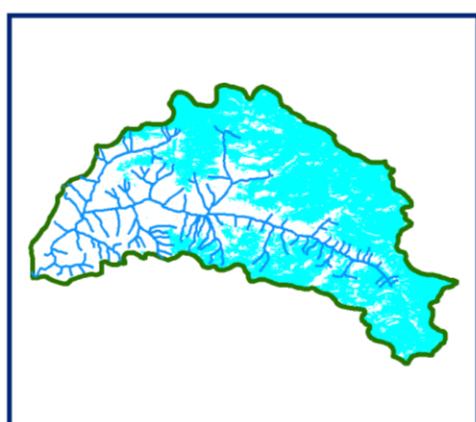
10 DAILY SNOW COVER MAP: PARBATI BASIN



DATA USED
02 Nov 2013



DATA USED
12 Nov 2013
16 Nov 2013



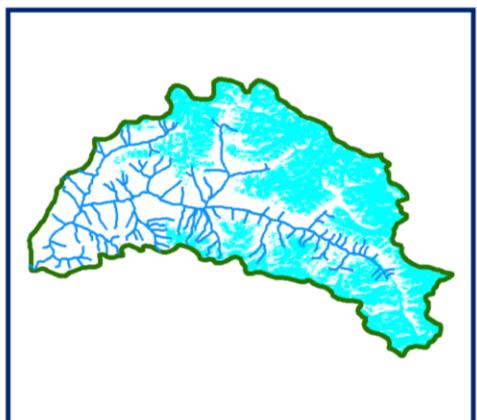
DATA USED
21 Nov 2013
26 Nov 2013
30 Nov 2013



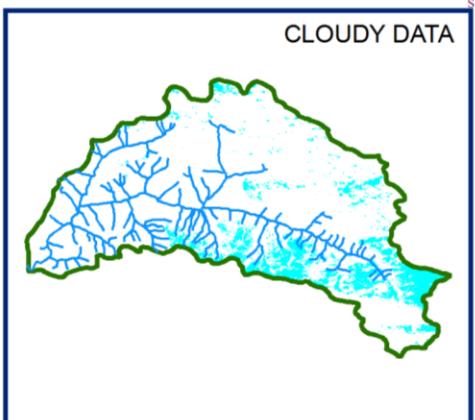
SNOW

04.59 18 27 36
Kilometers

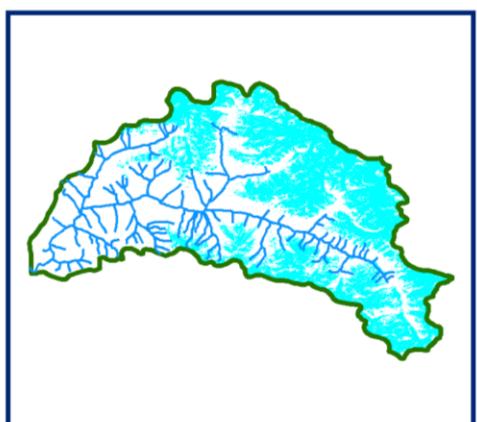
SNOW COVER MAP : PARBATI BASIN



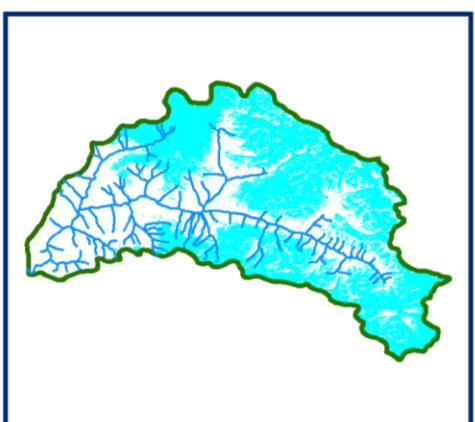
01 Dec 2013



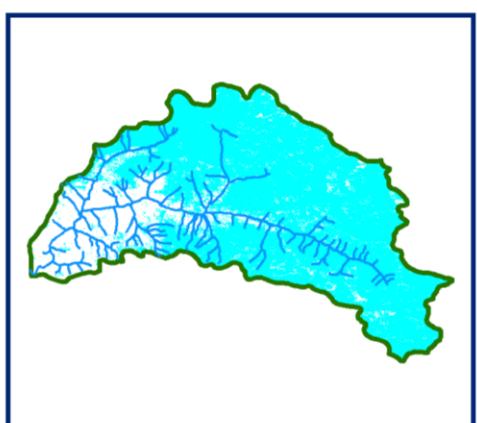
10 Dec 2013



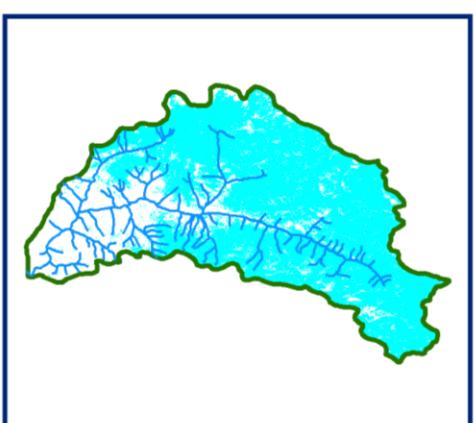
15 Dec 2013



20 Dec 2013



24 Dec 2013



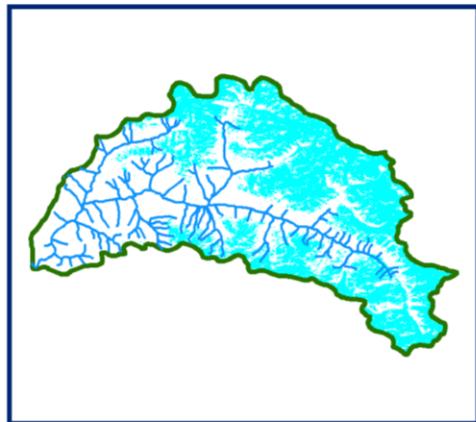
25 Dec 2013



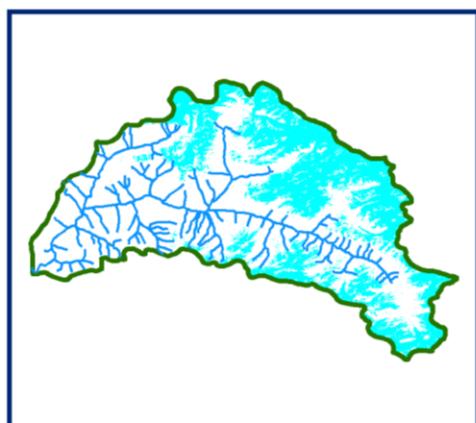
SNOW

04.59 18 27 36
Kilometers

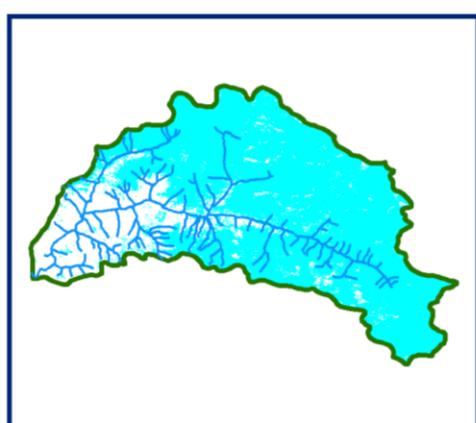
10 DAILY SNOW COVER MAP: PARBATI BASIN



DATA USED
01 Dec 2013



DATA USED
15 Dec 2013
19 Dec 2013
20 Dec 2013



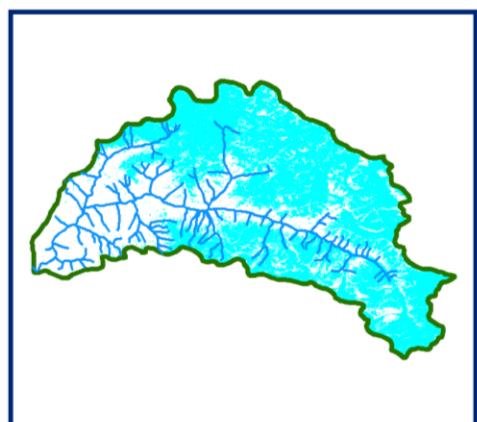
DATA USED
24 Dec 2013
25 Dec 2013



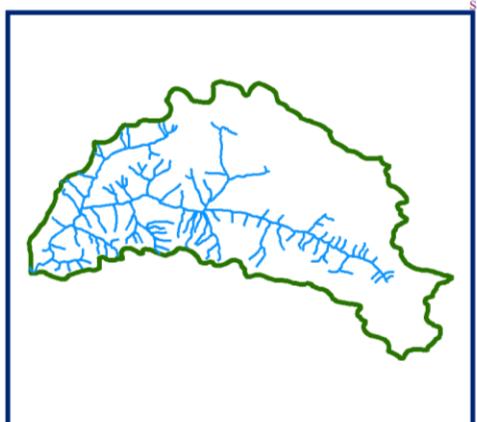
SNOW

04.59 18 27 36
Kilometers

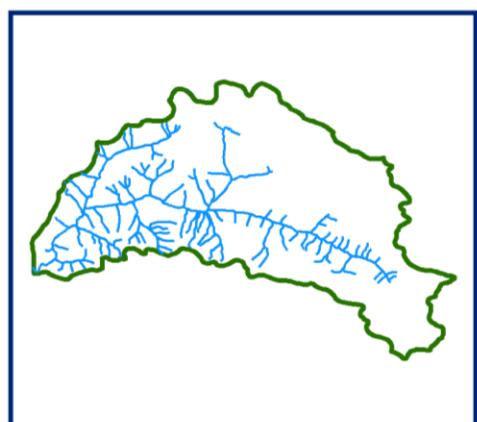
SNOW COVER MAP : PARBATI BASIN



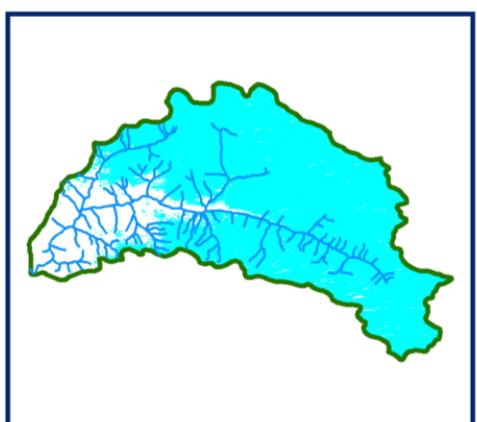
03 Jan 2014



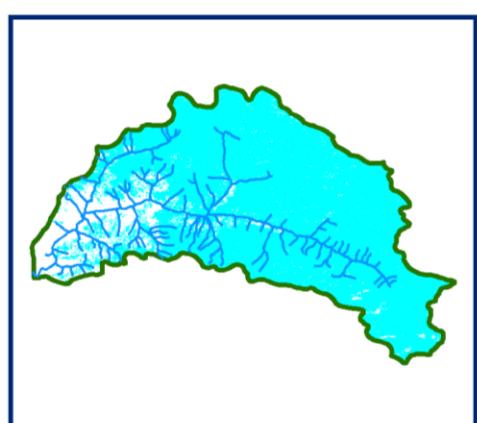
DATA NOT AVAILABLE



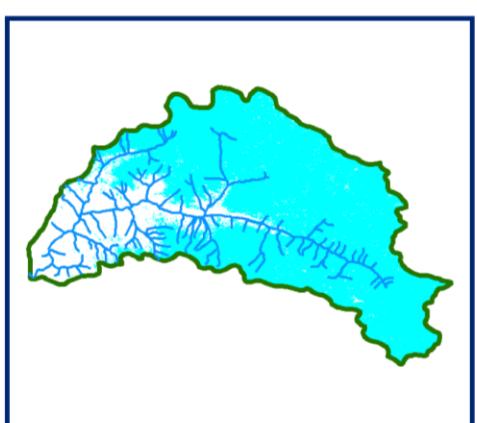
DATA NOT AVAILABLE



20 Jan 2014



23 Jan 2014



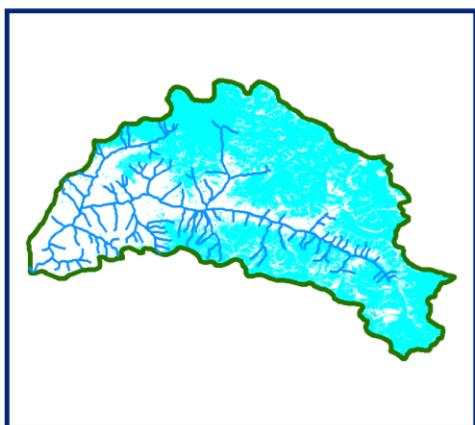
27 Jan 2014



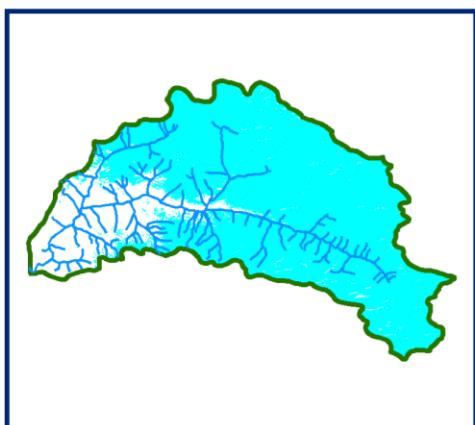
SNOW

04.59 18 27 36
Kilometers

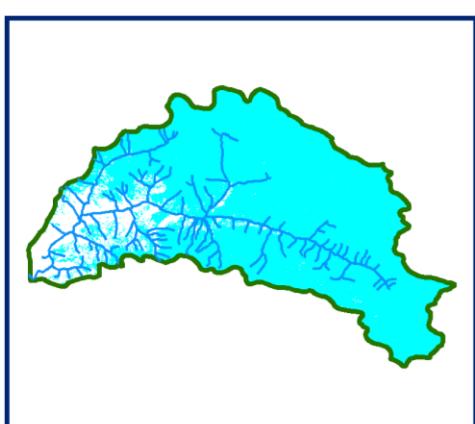
10 DAILY SNOW COVER MAP: PARBATI BASIN



DATA USED
03 Jan 2014



DATA USED
20 Jan 2014



DATA USED
23 Jan 2014
27 Jan 2014

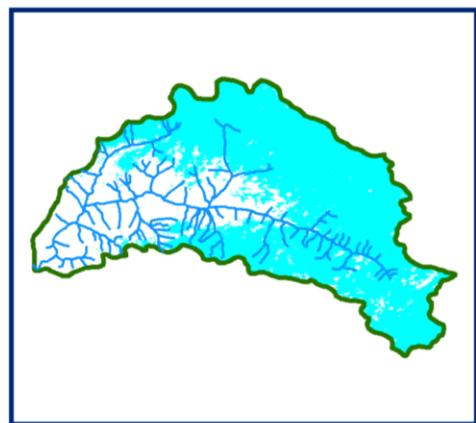


SNOW

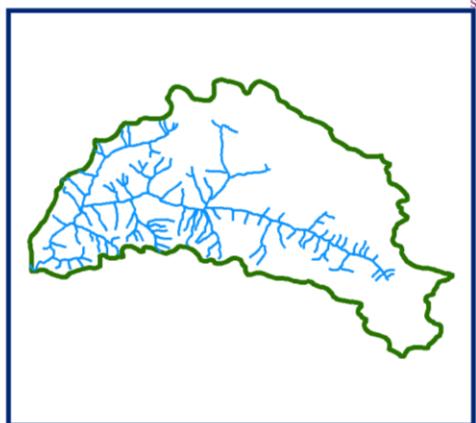
04.59 18 27 36
Kilometers

SNOW COVER MAP

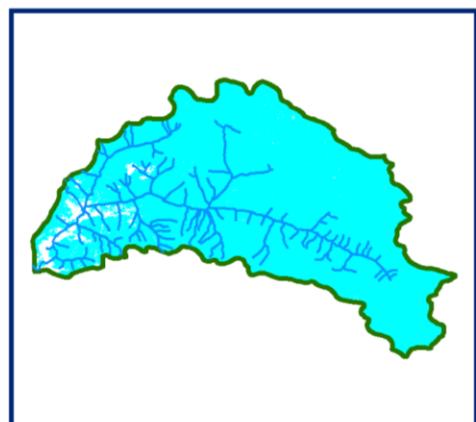
: PARBATI BASIN



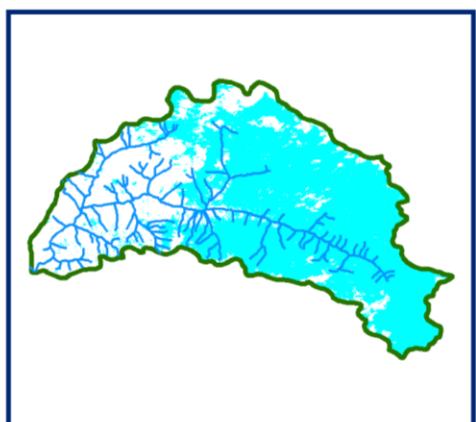
01 Feb 2014



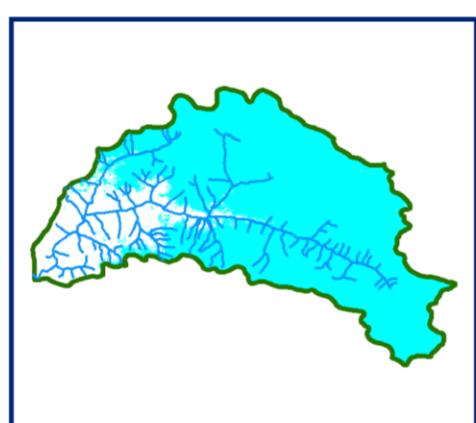
DATA NOT AVAILABLE



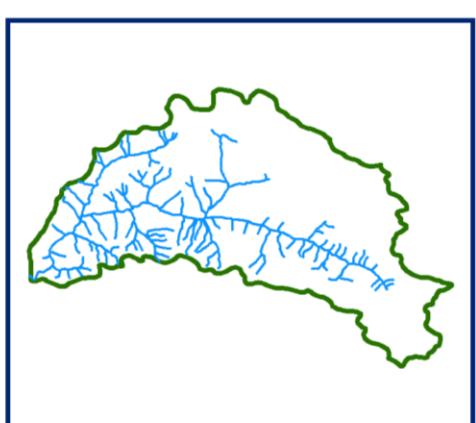
16 Feb 2014



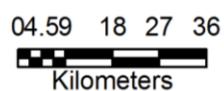
20 Feb 2014



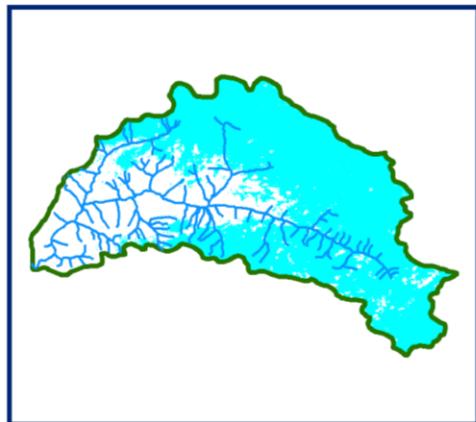
25 Feb 2014



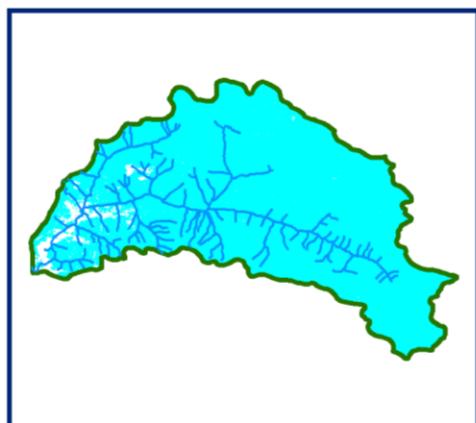
DATA NOT AVAILABLE



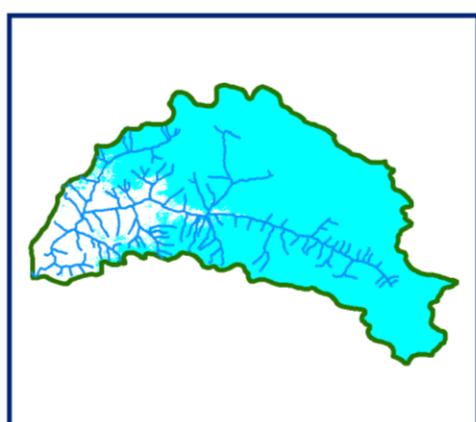
10 DAILY SNOW COVER MAP: PARBATI BASIN



DATA USED
01 Feb 2014



DATA USED
16 Feb 2014
20 Feb 2014



DATA USED
25 Feb 2014

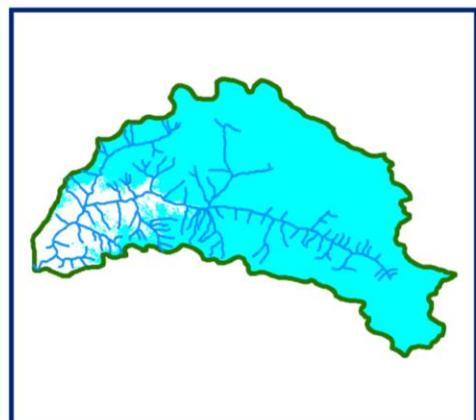


SNOW

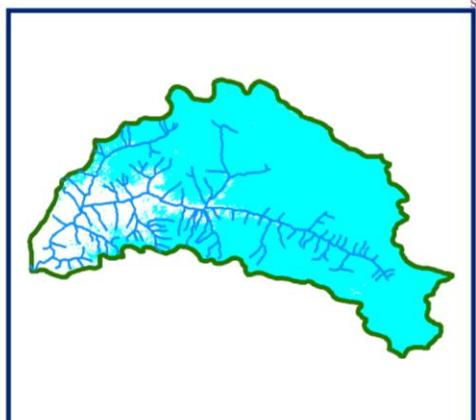
04.59 18 27 36
Kilometers

SNOW COVER MAP

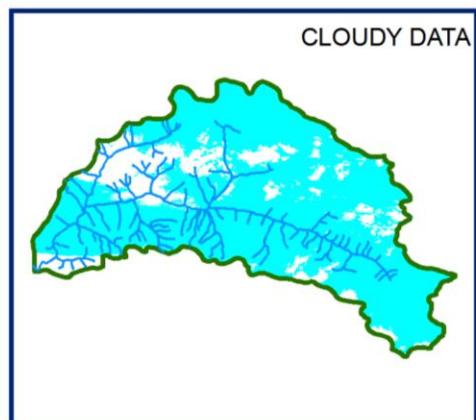
: PARBATI BASIN



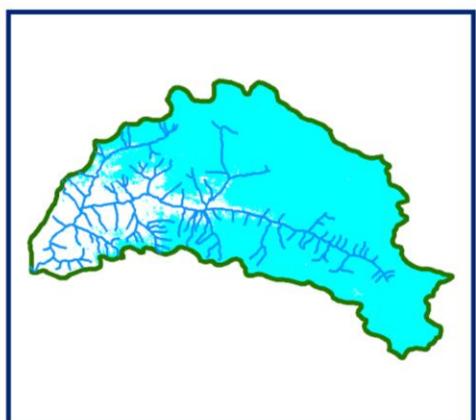
06 March 2014



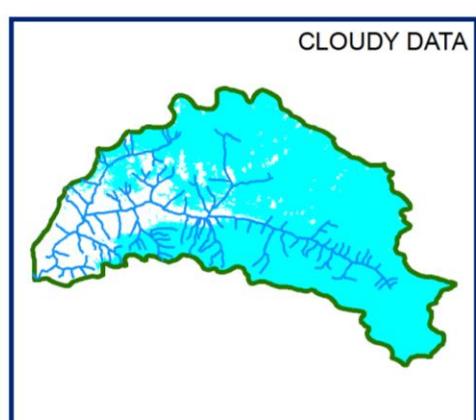
07 March 2014



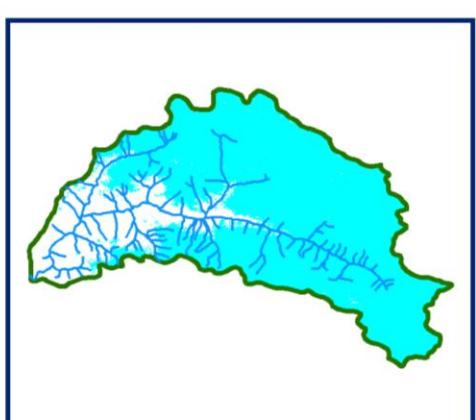
12 March 2014



16 March 2014



21 March 2014

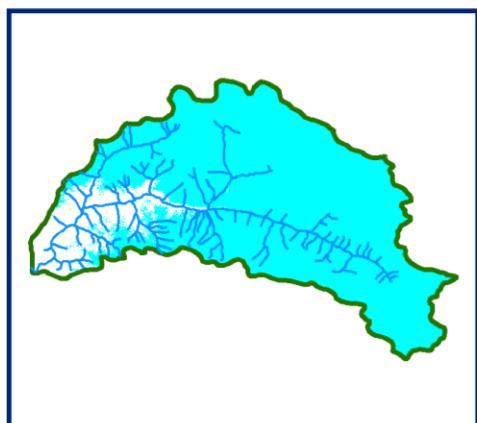


31 March 2014

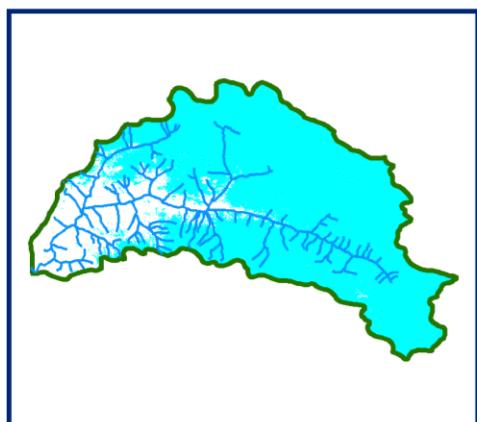


04.59 18 27 36
Kilometers

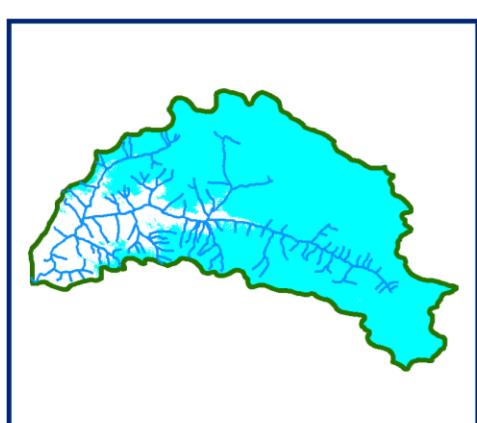
10 DAILY SNOW COVER MAP: PARBATI BASIN



DATA USED
06 March 2014
07 March 2014



DATA USED
16 March 2014



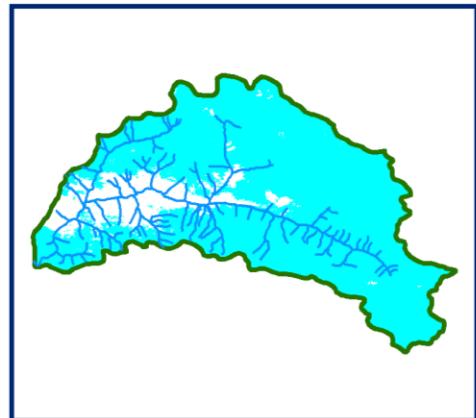
DATA USED
21 March 2014
30 March 2014
31 March 2014



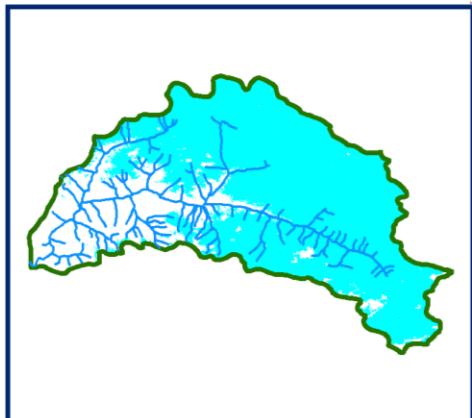
SNOW

04.59 18 27 36
Kilometers

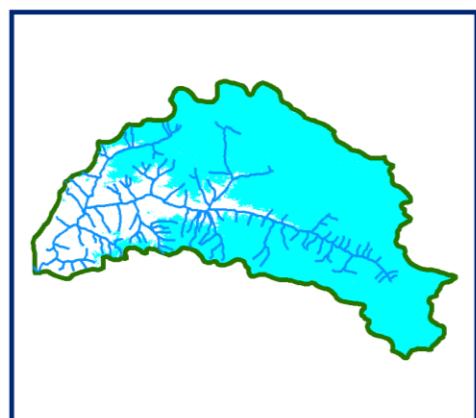
SNOW COVER MAP : PARBATI BASIN



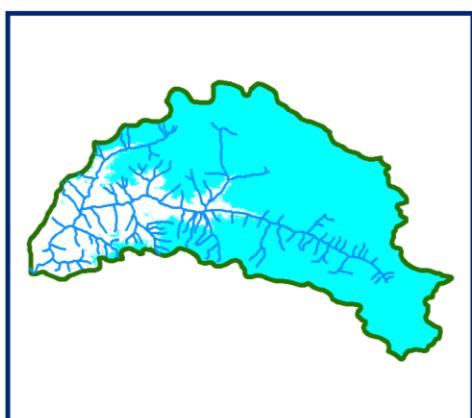
02 April 2014



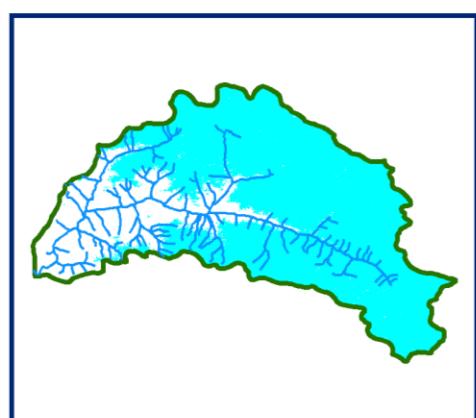
09 April 2014



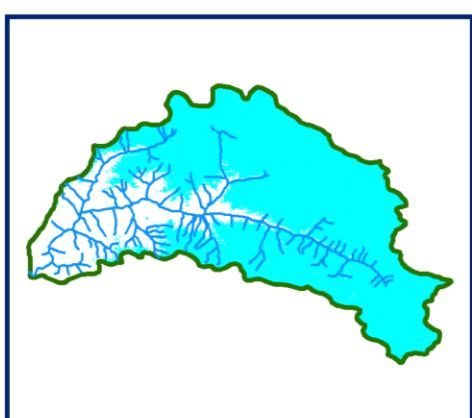
12 April 2014



14 April 2014



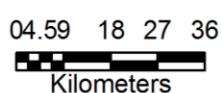
24 April 2014



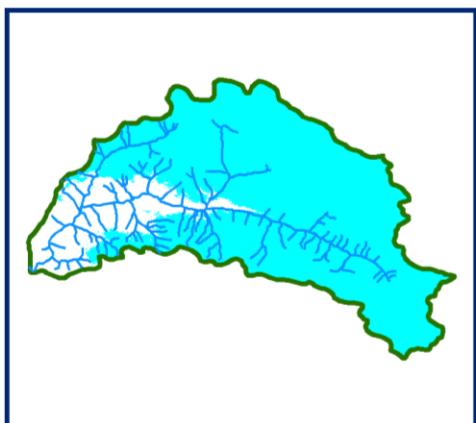
28 April 2014



SNOW

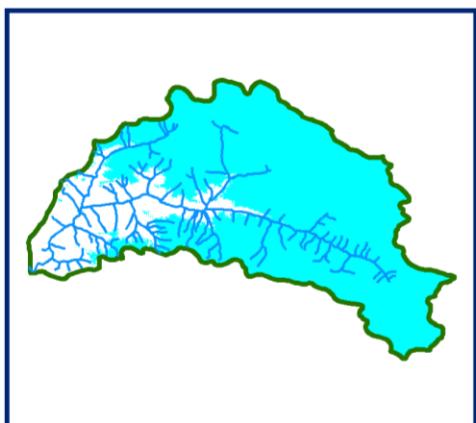


10 DAILY SNOW COVER MAP: PARBATI BASIN



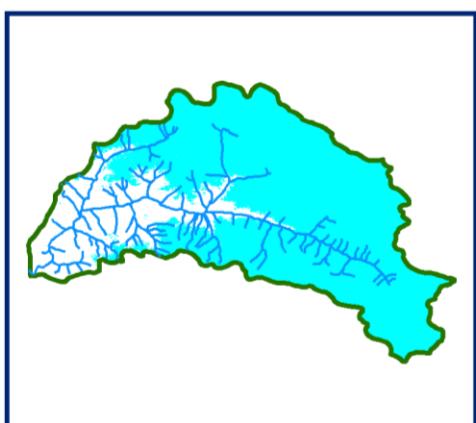
DATA USED

02 April 2014
05 April 2014
09 April 2014



DATA USED

12 April 2014
14 April 2014



DATA USED

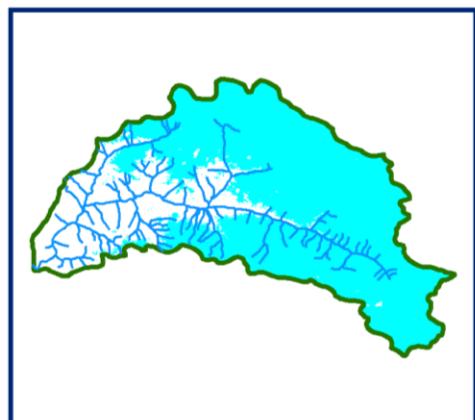
24 April 2014
26 April 2014
28 April 2014



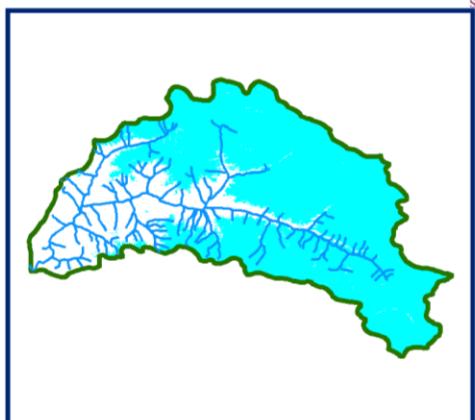
SNOW

04.59 18 27 36
Kilometers

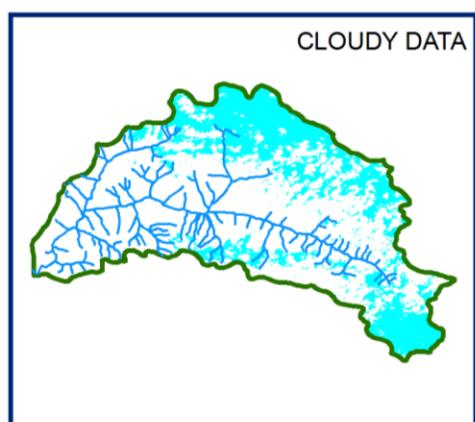
SNOW COVER MAP : PARBATI BASIN



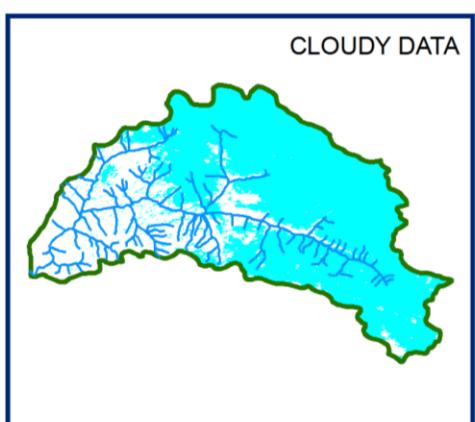
01 May 2014



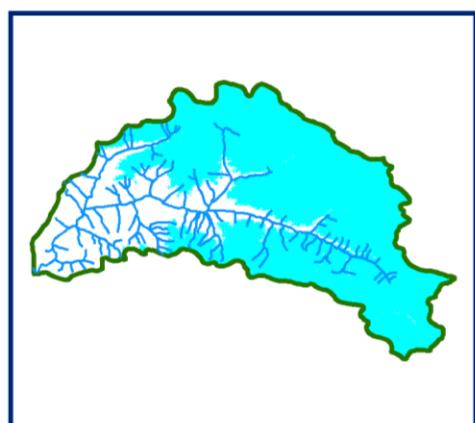
08 May 2014



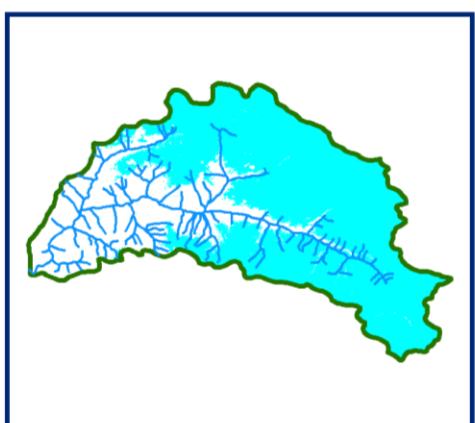
18 May 2014



20 May 2014



22 May 2014



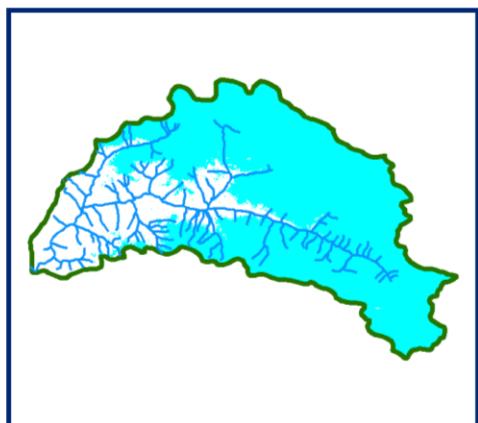
27 May 2014



SNOW

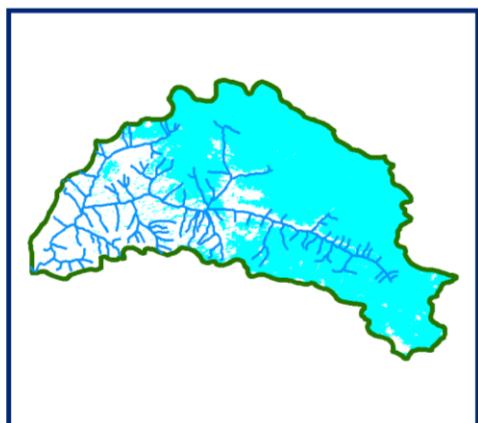
04.59 18 27 36
Kilometers

10 DAILY SNOW COVER MAP: PARBATI BASIN



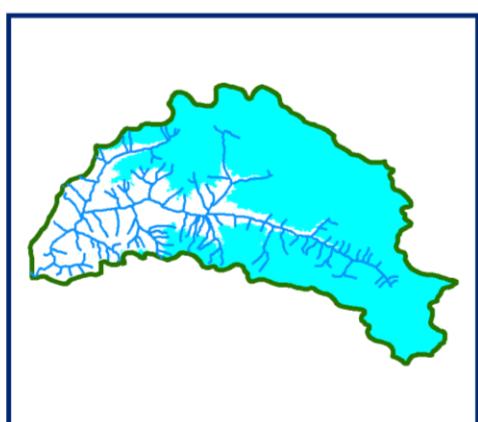
DATA USED

**01 May 2014
03 May 2014
08 May 2014**



DATA USED

20 May 2014



DATA USED

**22 May 2014
25 May 2014
27 May 2014**

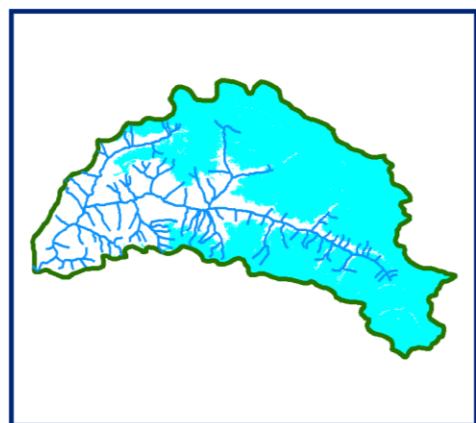


SNOW

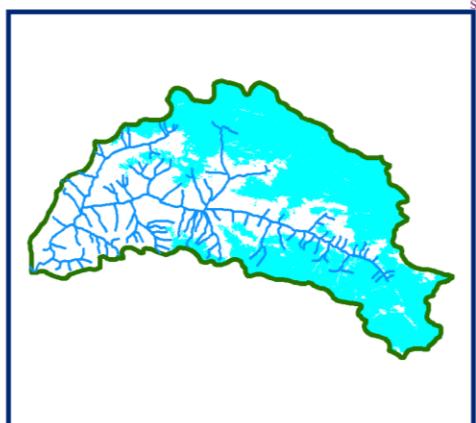
04.59 18 27 36
 Kilometers

SNOW COVER MAP

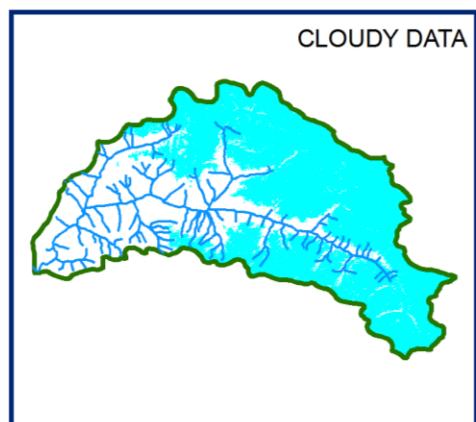
: PARBATI BASIN



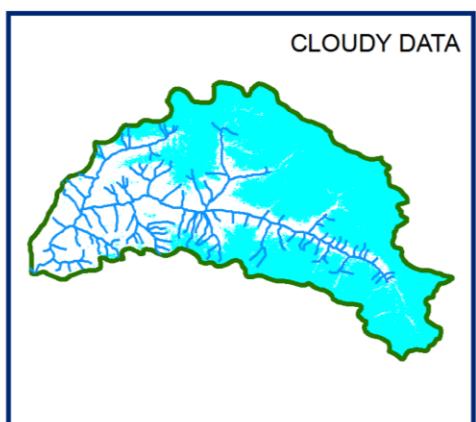
04 June 2014



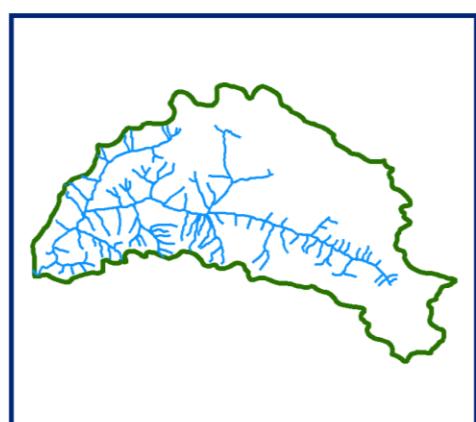
10 June 2014



11 June 2014



20 June 2014

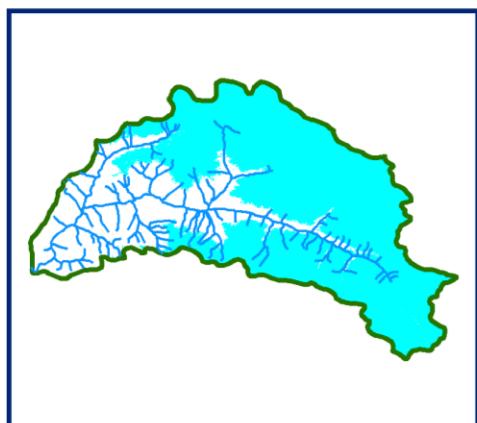


DATA NOT AVAILABLE

04.59 18 27 36
Kilometers

SNOW

10 DAILY SNOW COVER MAP: PARBATI BASIN

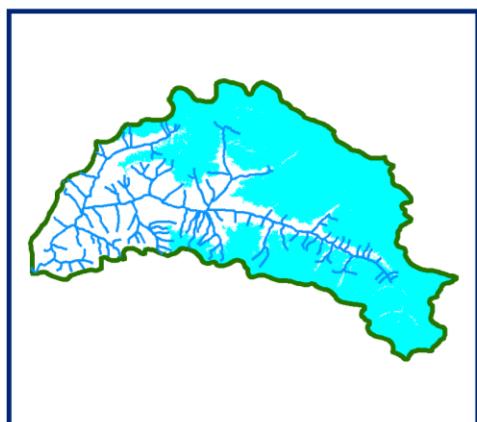


DATA USED

03 June 2014

06 June 2014

10 June 2014

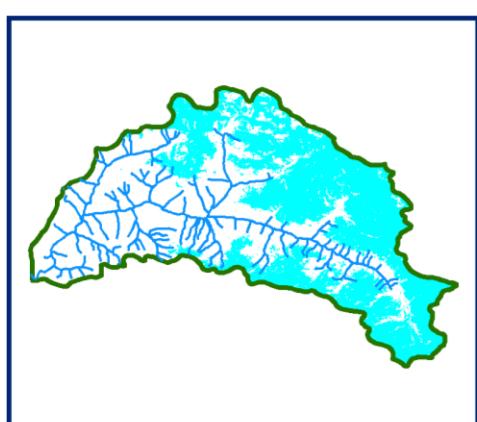


DATA USED

11 June 2014

16 June 2014

20 June 2014



DATA USED

28 June 2014



SNOW

04.59 18 27 36
Kilometers

BEAS BASIN

AREAL EXTENT OF SNOW (5 DAILY)

BASIN NAME: BEAS

BASIN AREA: 1132 sq km

S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud Cover
October 2013									
1.	04-10-2013	23	2	50%	4.	16-10-2013	157	14	20%
2.	09-10-2013	26	2	40%	5.	18-10-2013	44	3	30%
3.	14-10-2013	196	17	20%	6.	23-10-2013	96	9	25%
November 2013									
1.	02-11-2013	197	17	Clear	5.	21-11-2013	366	32	Clear
2.	12-11-2013	460	41	10%	6.	24-11-2013	289	26	Clear
3.	16-11-2013	459	41	Clear	7.	30-11-2013	264	23	Clear
4.	16-11-2013	460	41	Clear					
December 2013									
1.	01-12-2013	228	20	Clear	5.	20-12-2013	364	32	Clear
2.	10-12-2013	115	10	50%	6.	24-12-2013	734	65	Clear
3.	15-12-2013	182	16	Clear	7.	25-12-2013	230	20	60%
4.	19-12-2013	79	7	25%					
January 2014									
1.	03-01-2014	586	52	Clear	3.	23-01-2014	823	73	Clear
2.	20-01-2014	778	69	Clear	4.	27-01-2014	663	59	Clear
February 2014									
1.	01-02-2014	549	48	50%	4.	25-02-2014	748	66	Clear
2.	16-02-2014	1075	95	50%	5.	25-02-2014	750	66	Clear
3.	20-02-2014	525	46	90%					
March 2014									
1.	06-03-2014	873	77	20%	5.	21-03-2014	697	62	40%
2.	07-03-2014	783	69	Clear	6.	30-03-2014	739	65	Clear
3.	12-03-2014	1079	95	90%	7.	31-03-2014	699	62	Clear
4.	16-03-2014	747	66	20%					
April 2014									
1.	02-04-2014	1107	98	40%	6.	23-04-2014	573	51	10%
2.	05-04-2014	260	23	80%	7.	24-04-2014	607	54	Clear
3.	09-04-2014	575	51	60%	8.	26-04-2014	488	43	30%
4.	12-04-2014	672	59	Clear	9.	28-04-2014	619	55	Clear
5.	14-04-2014	664	59	Clear					
May 2014									
1.	01-05-2014	559	49	5%	5.	20-05-2014	456	40	80%
2.	03-05-2014	421	37	60%	6.	22-05-2014	522	46	Clear
3.	08-05-2014	531	47	Clear	7.	25-05-2014	475	42	5%
4.	18-05-2014	362	32	100%	8.	27-05-2014	402	36	20%

June 2014									
1.	03-06-2014	462	41	Clear	6.	13-06-2014	343	30	Clear
2.	04-06-2014	404	36	Clear	7.	16-06-2014	252	22	20%
3.	06-06-2014	359	32	5%	8.	20-06-2014	429	38	30%
4.	10-06-2014	265	23	30%	9.	28-06-2014	127	11	40%
5.	11-06-2014	320	28	3%					

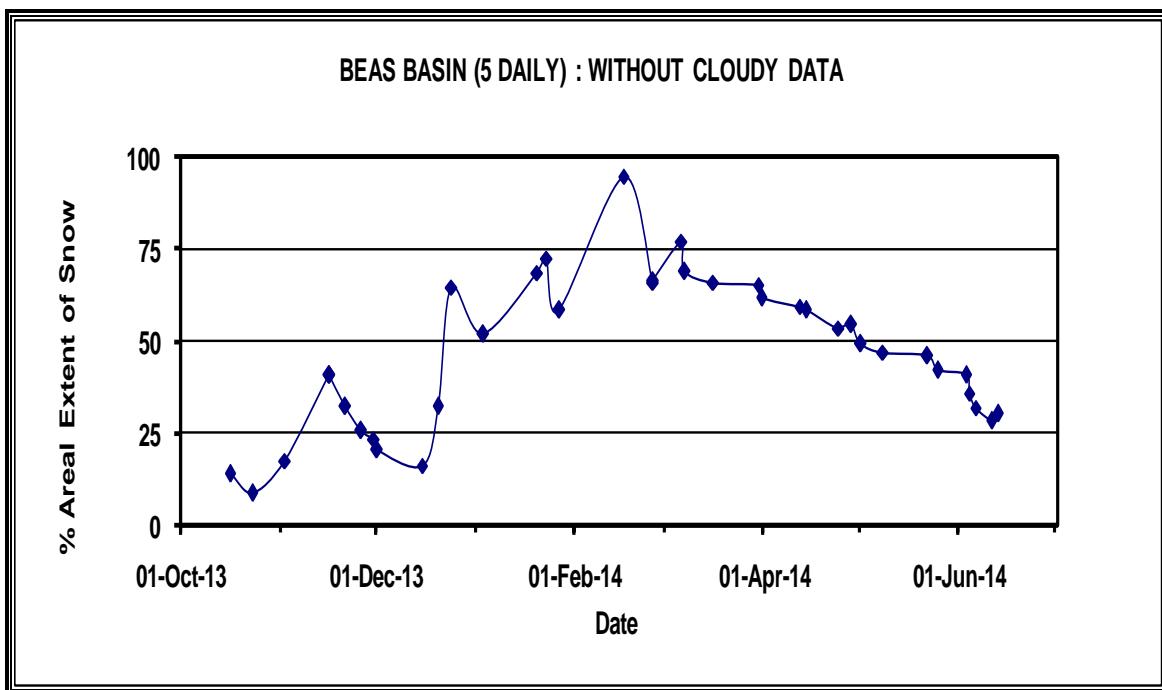
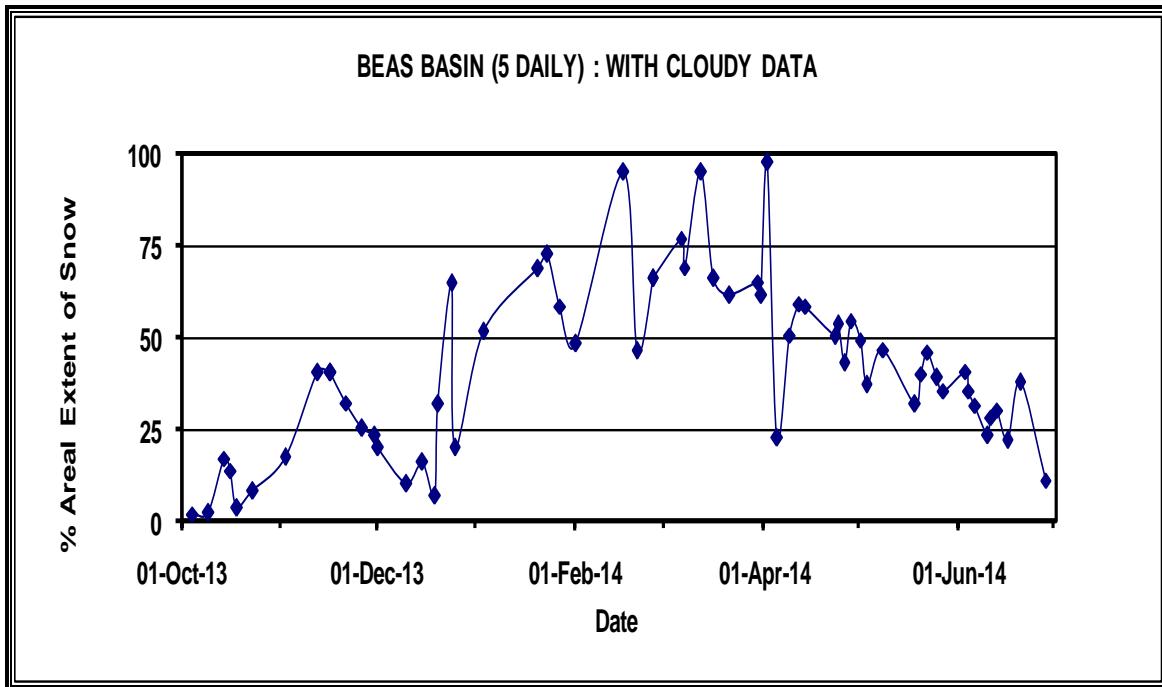
AREAL EXTENT OF SNOW (10 DAILY)

BASIN NAME: BEAS

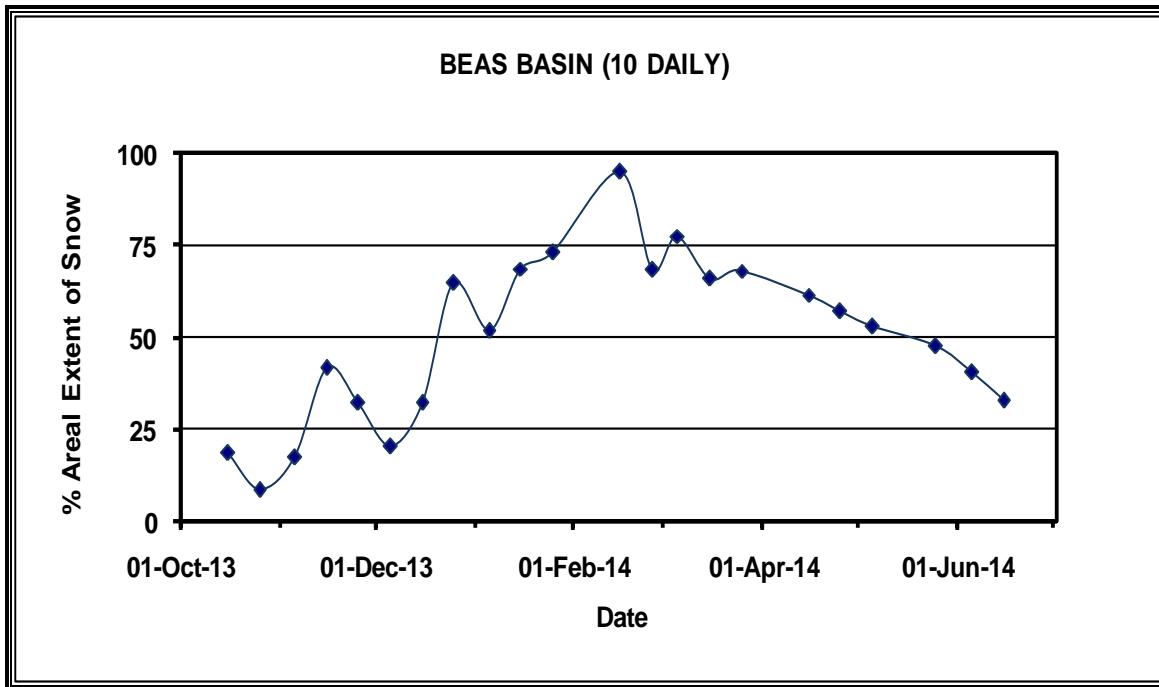
BASIN AREA: 1132 sq km

S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud cover	S No	Date	Snow cover (sq km)	Snow cover (%)	Cloud cover
October 2013									
1.	14-Oct-2013	209	18	50%	4.	23-Oct-2013	96	9	25%
2.	16-Oct-2013			20%					
3.	18-Oct-2013			30%					
November 2013									
1.	02-Nov-2013	196	17	Clear	4.	21-Nov-2013	326	29	Clear
2.	12-Nov-2013	473	41	10%	5.	24-Nov-2013			Clear
3.	16-Nov-2013			Clear	6.	30-Nov-2013			Clear
December 2013									
1.	01-Dec-2013	228	20	Clear	5.	24-Dec-2013	733	65	Clear
2.	10-Dec-2013			50%	6.	25-Dec-2013			60%
3.	15-Dec-2013	186	16	Clear					
4.	20-Dec-2013			Clear					
January 2014									
1.	03-Jan-2014	586	52	Clear	3.	23-Jan-2014	740	65	Clear
2.	20-Jan-2014	778	69	Clear	4.	27-Jan-2014			Clear
February 2014									
1.	16-Feb-2014	1076	95	50%	2.	25-Feb-2014	775	68	Clear
March 2014									
1.	06-March-2014	879	78	20%	4.	21-March-2014	771	68	40%
2.	07-March-2014			Clear	5.	30-March-2014			Clear
3.	16-March-2014	704	62	20%	6.	31-March-2014			Clear
April 2014									
1.	12-April-2014	697	62	Clear	3.	23-April-2014	645	57	10%
2.	14-April-2014			Clear	4.	24-April-2014			Clear
					5.	28-April-2014			Clear
May 2014									
1.	01-May-2014	599	53	5%	3.	22-May-2014	540	48	Clear
2.	08-May-2014			Clear	4.	25-May-2014			5%
					5.	27-May-2014			20%
June 2014									
1.	03-June-2014	457	40	Clear	7.	28-June-2014	127	11	40%
2.	04-June-2014			Clear					
3.	06-June-2014			5%					
4.	11-June-2014	371	33	3%					
5.	13-June-2014			Clear					
6.	16-June-2014			20%					

Snow cover depletion curve

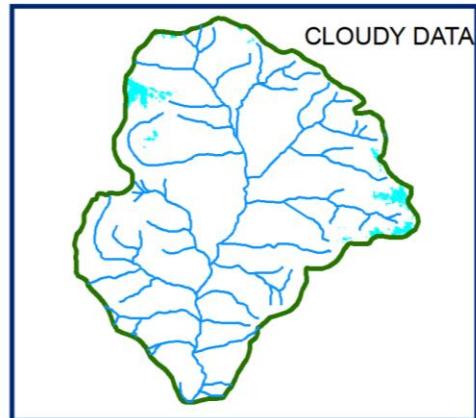


Snow cover depletion curve

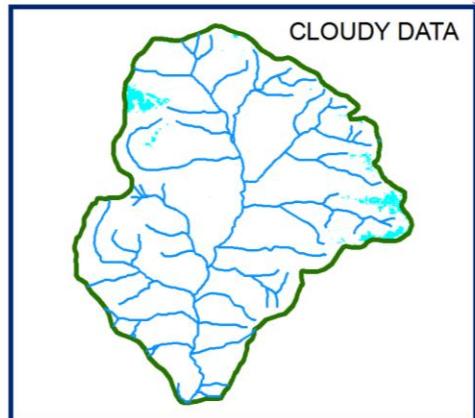


SNOW COVER MAP

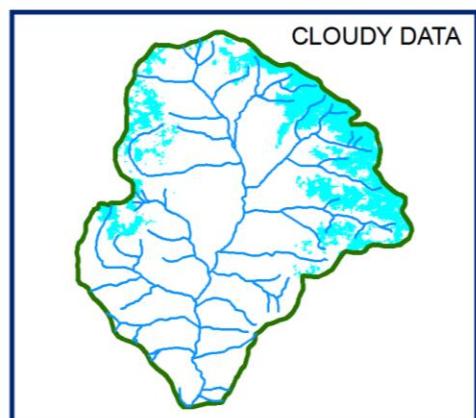
SNOW COVER MAP : BEAS BASIN



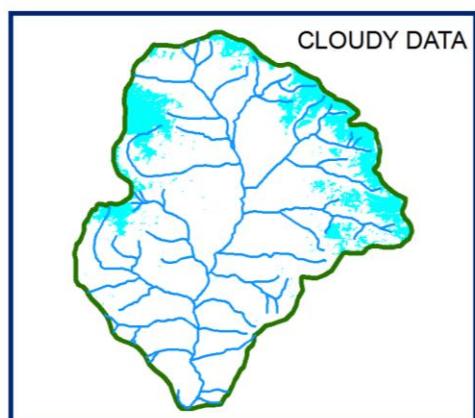
04 Oct 2013



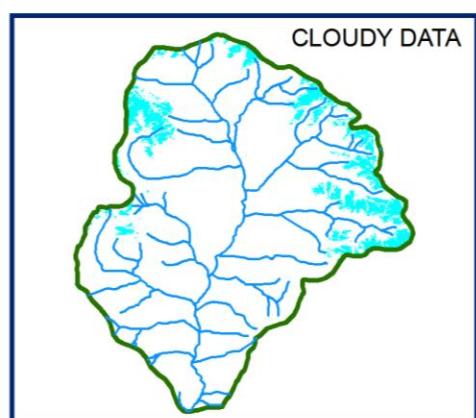
09 Oct 2013



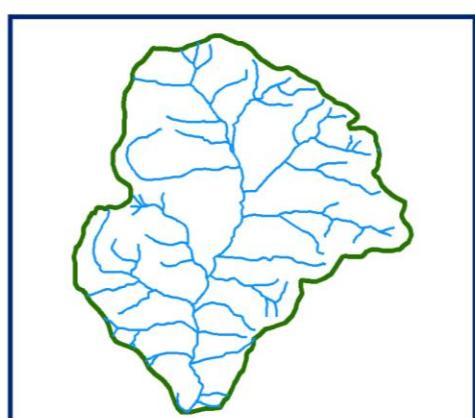
14 Oct 2013



16 Oct 2013



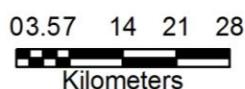
23 Oct 2013



DATA NOT AVAILABLE

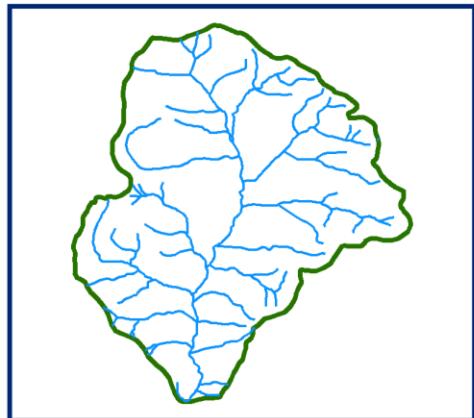


SNOW

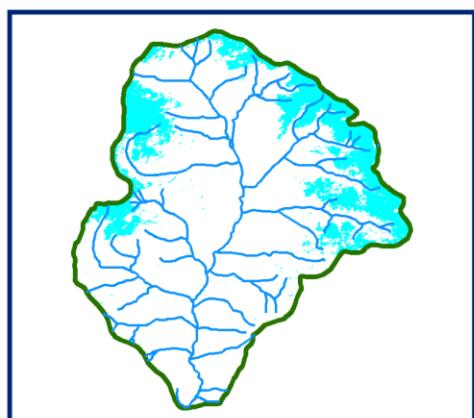


Kilometers

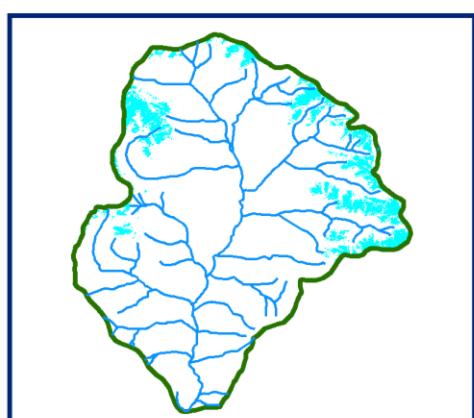
10 DAILY SNOW COVER MAP: BEAS BASIN



DATA USED
DATA NOT AVAILABLE



DATA USED
14 Oct 2013
16 Oct 2013
18 Oct 2013



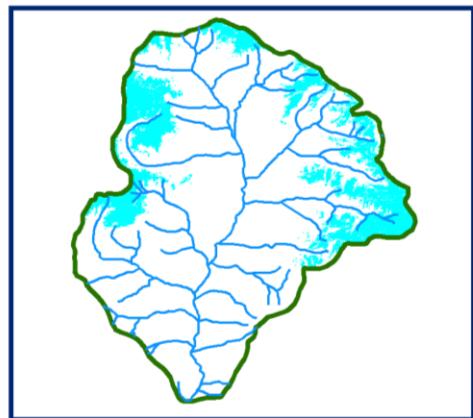
DATA USED
23 Oct 2013



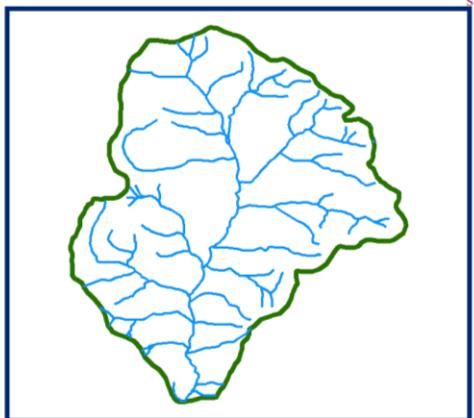
SNOW

03.57 14 21 28
Kilometers

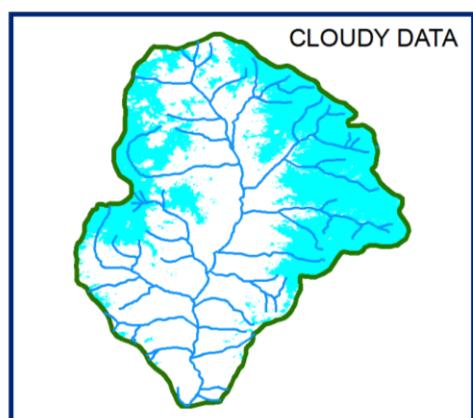
SNOW COVER MAP : BEAS BASIN



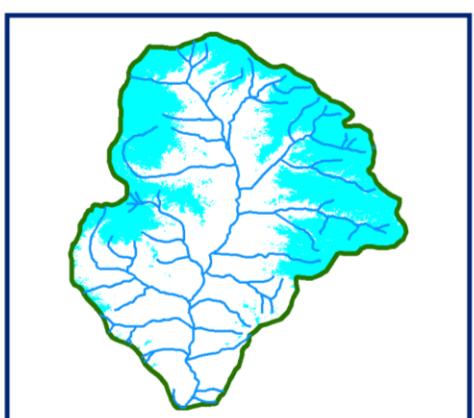
02 Nov 2013



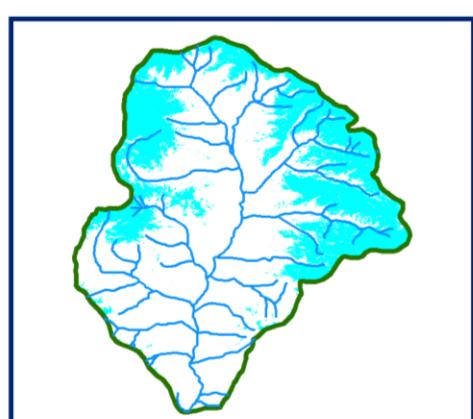
DATA NOT AVAILABLE



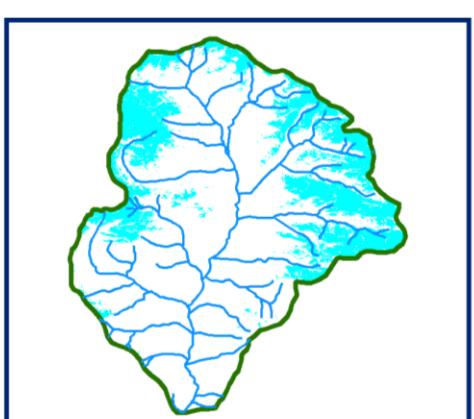
12 Nov 2013



16 Nov 2013



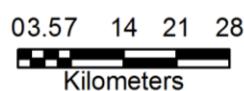
21 Nov 2013



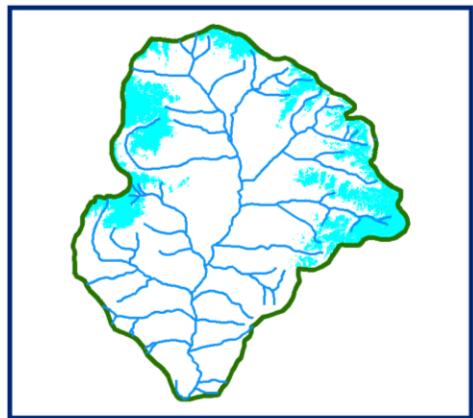
30 Nov 2013



SNOW

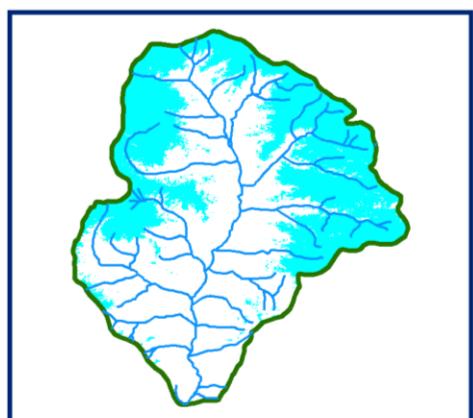


10 DAILY SNOW COVER MAP: BEAS BASIN



DATA USED

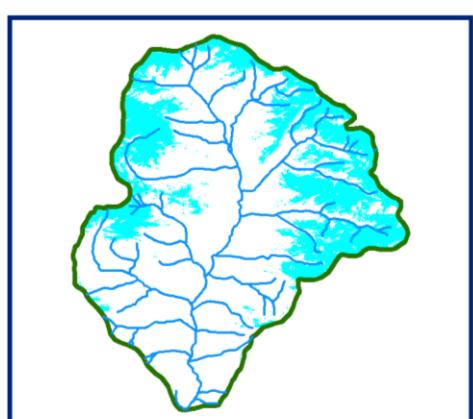
02 Nov 2013



DATA USED

12 Nov 2013

16 Nov 2013



DATA USED

21 Nov 2013

24 Nov 2013

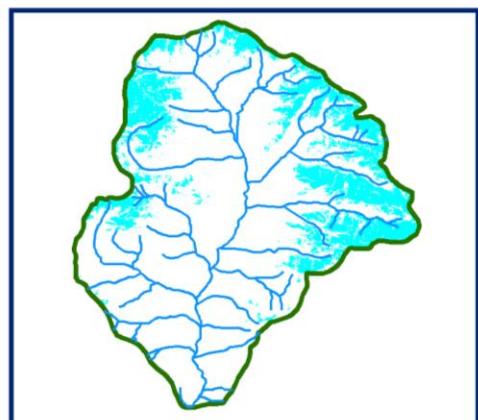
30 Nov 2013



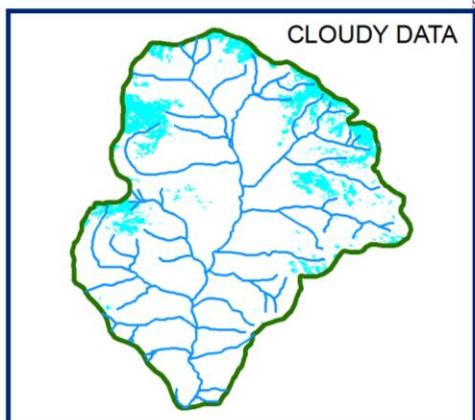
SNOW

03.57 14 21 28
Kilometers

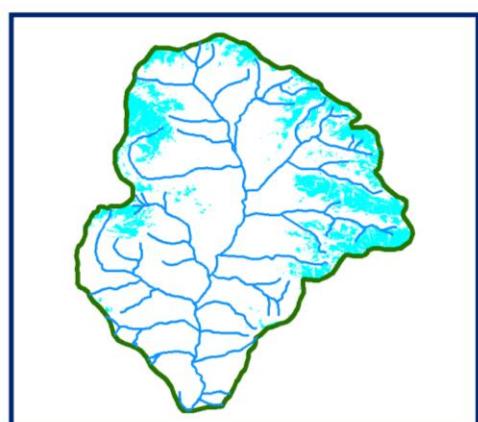
SNOW COVER MAP : BEAS BASIN



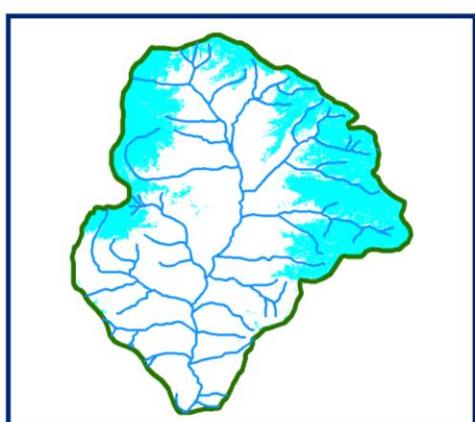
01 Dec 2013



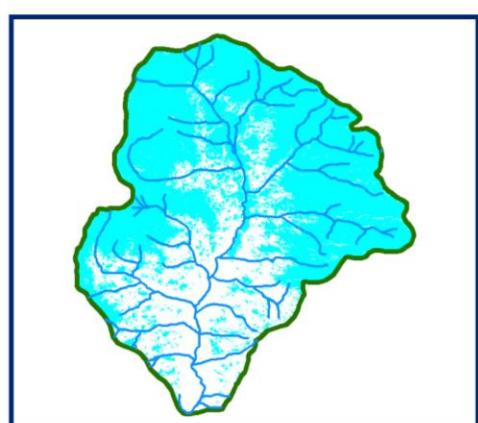
10 Dec 2013



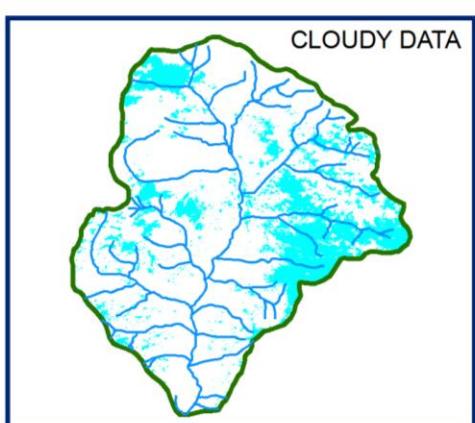
15 Dec 2013



20 Dec 2013



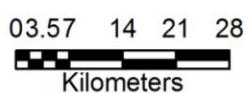
24 Dec 2013



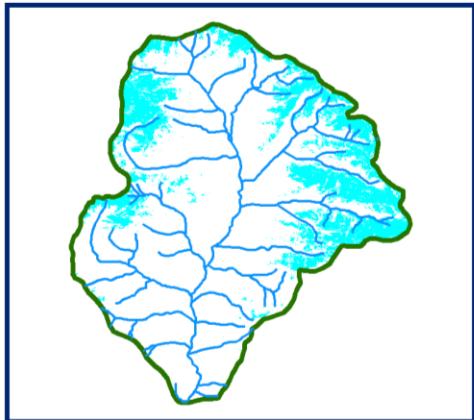
25 Dec 2013



SNOW



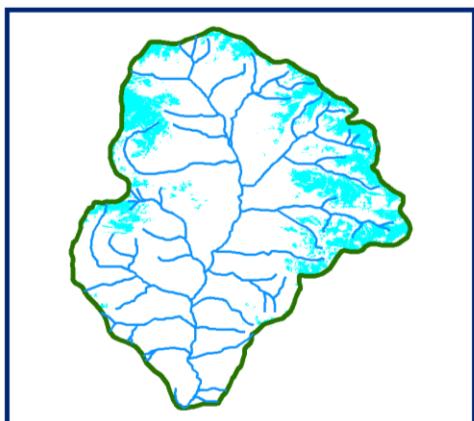
10 DAILY SNOW COVER MAP: BEAS BASIN



DATA USED

01 Dec 2013

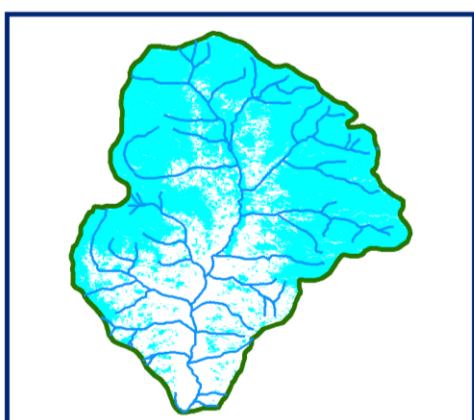
10 Dec 2013



DATA USED

15 Dec 2013

20 Dec 2013



DATA USED

24 Dec 2013

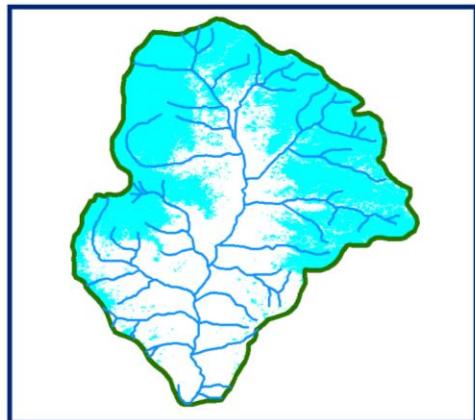
25 Dec 2013



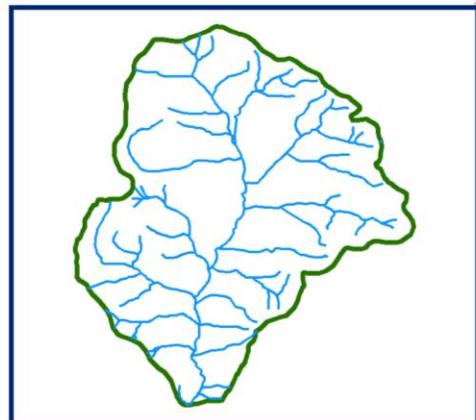
SNOW

03.57 14 21 28
 Kilometers

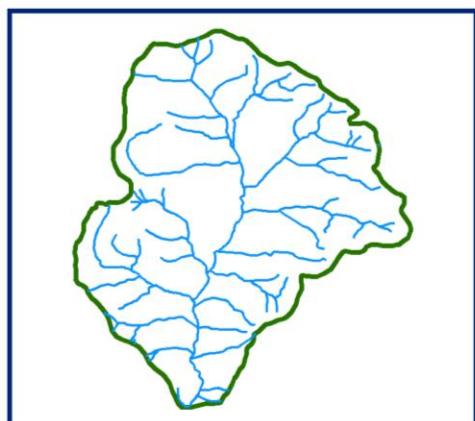
SNOW COVER MAP : BEAS BASIN



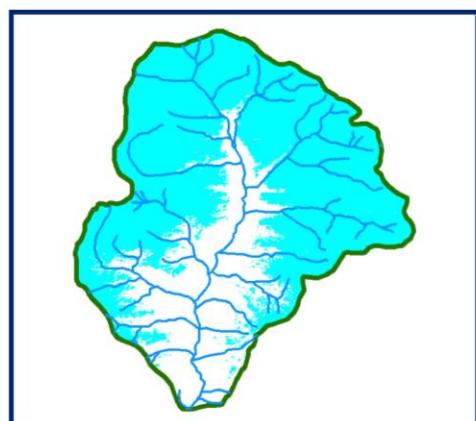
03 Jan 2014



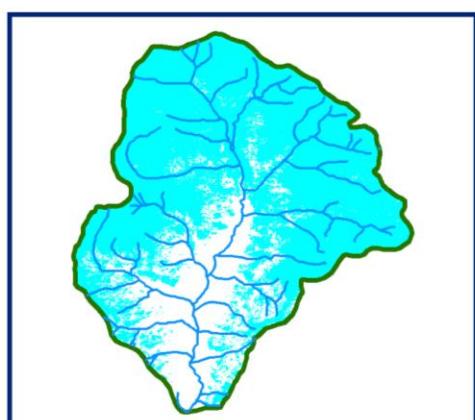
DATA NOT AVAILABLE



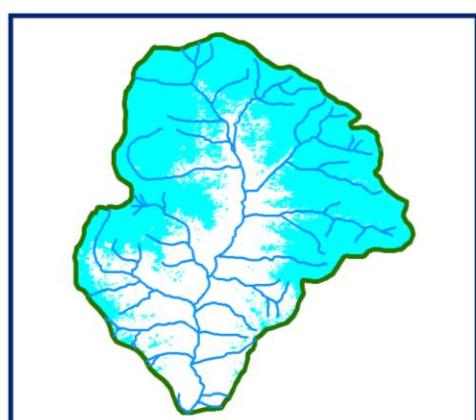
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20 Jan 2014



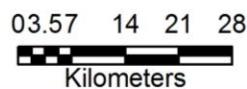
23 Jan 2014



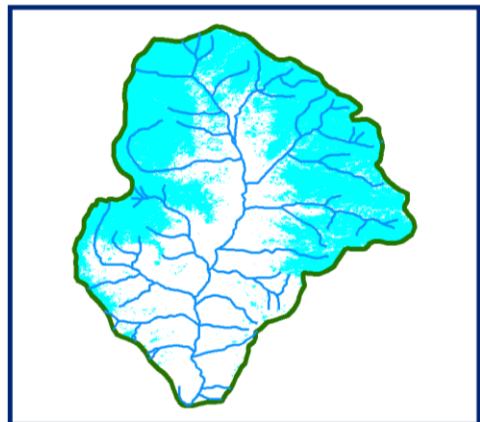
27 Jan 2014



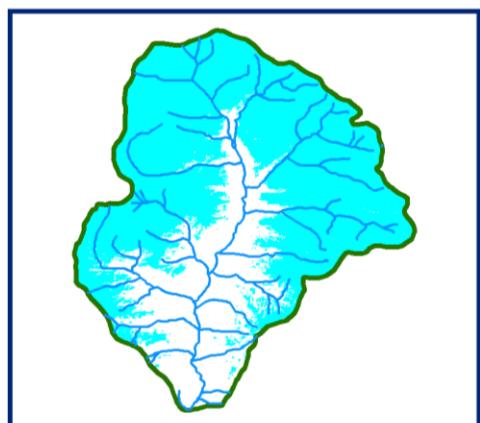
SNOW



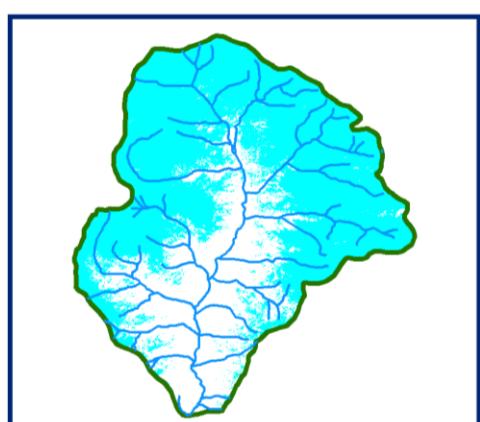
10 DAILY SNOW COVER MAP: BEAS BASIN



DATA USED
03 Jan 2014



DATA USED
20 Jan 2014

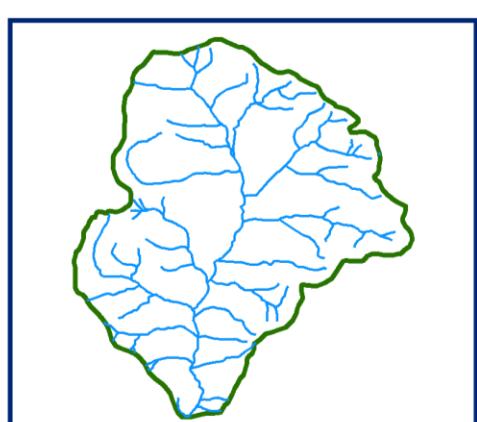
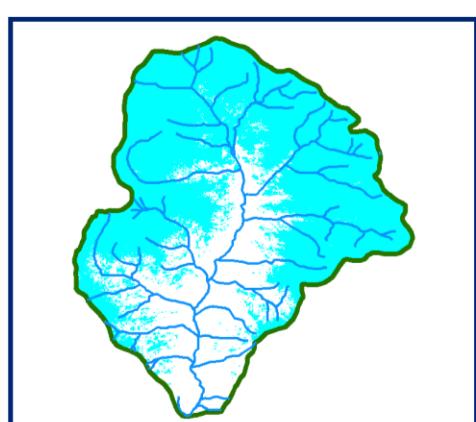
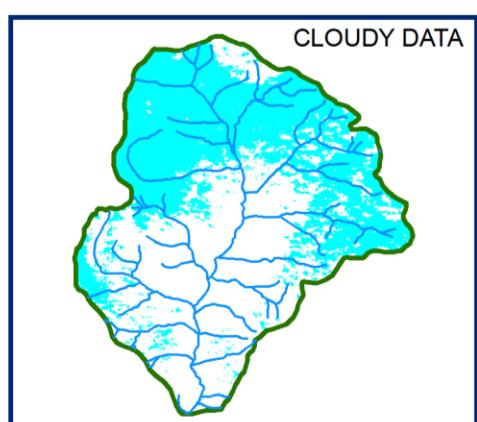
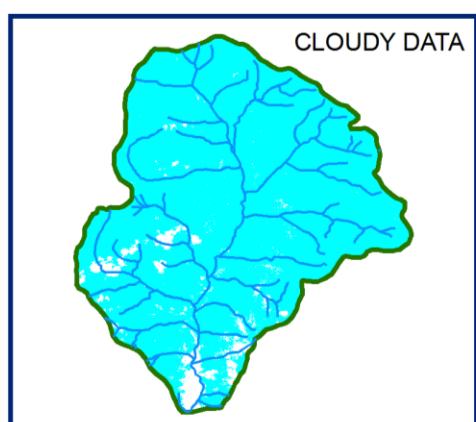
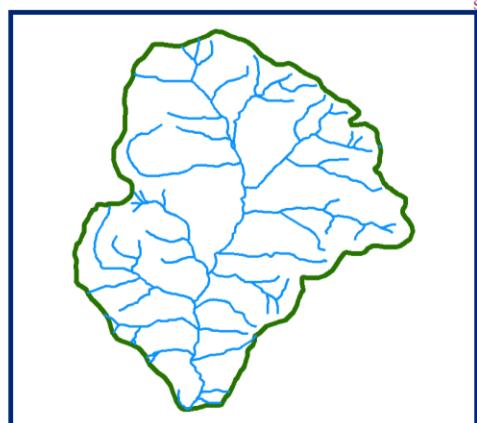
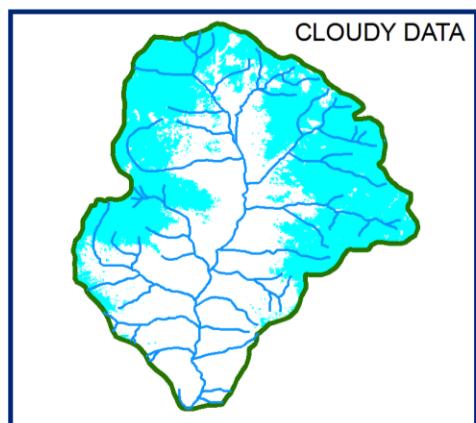


DATA USED
23 Jan 2014
27 Jan 2014



SNOW COVER MAP

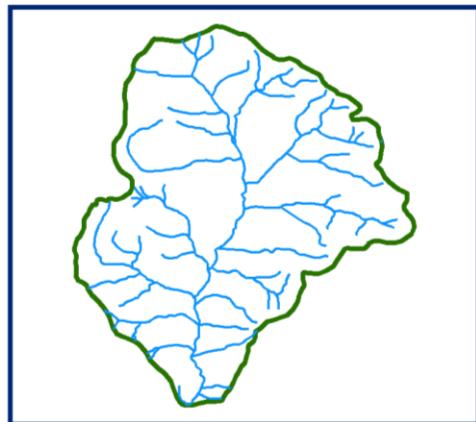
: BEAS BASIN



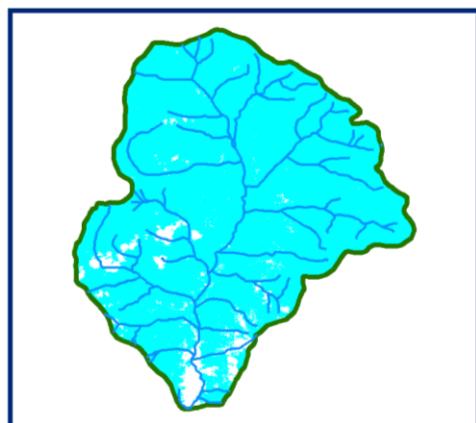
SNOW

03.57 14 21 28
Kilometers

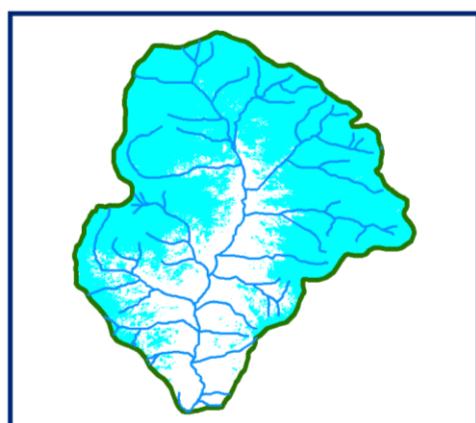
10 DAILY SNOW COVER MAP: BEAS BASIN



DATA USED
DATA NOT AVAILABLE



DATA USED
16 Feb 2014



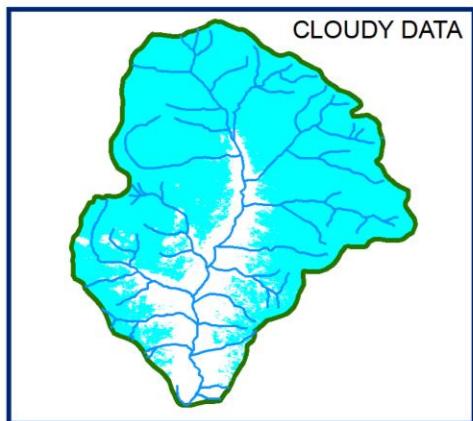
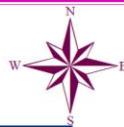
DATA USED
25 Feb 2014



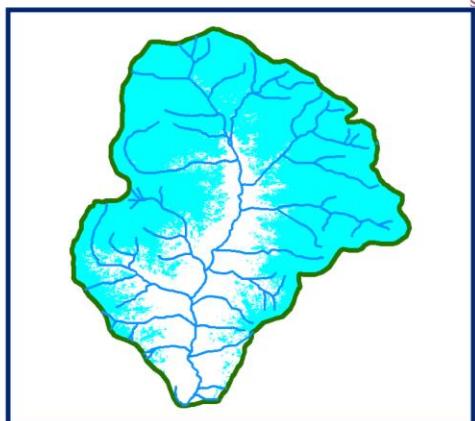
SNOW

03.57 14 21 28
Kilometers

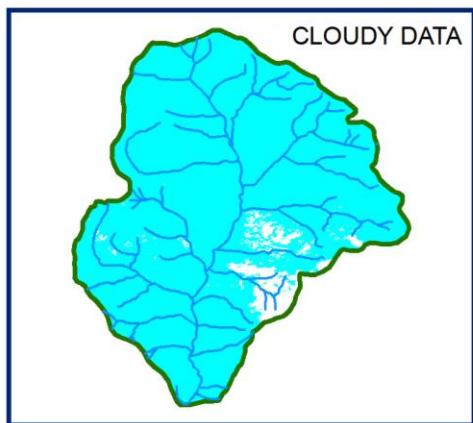
SNOW COVER MAP : BEAS BASIN



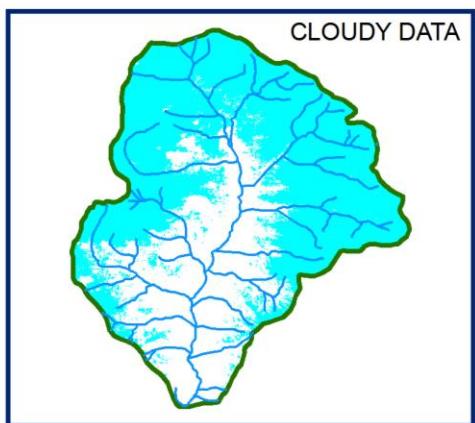
06 March 2014



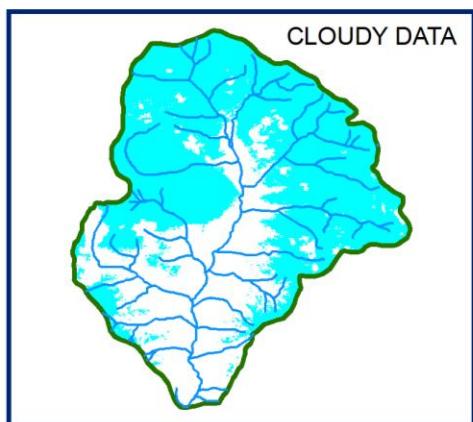
07 March 2014



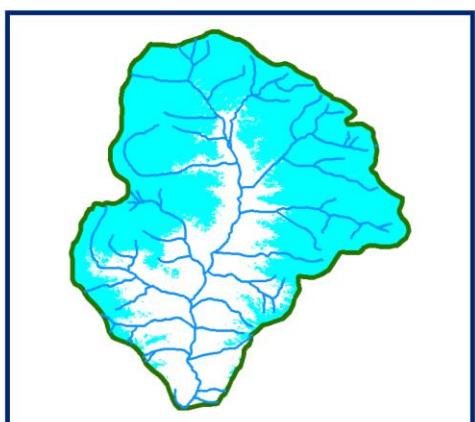
12 March 2014



16 March 2014



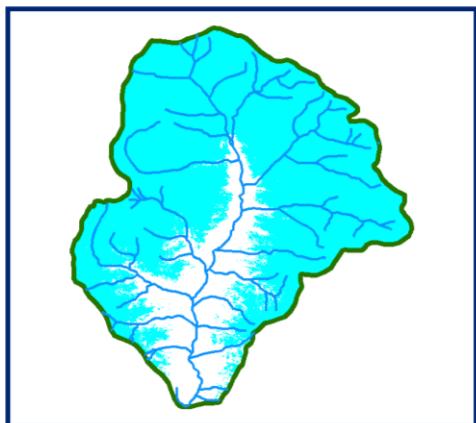
21 March 2014



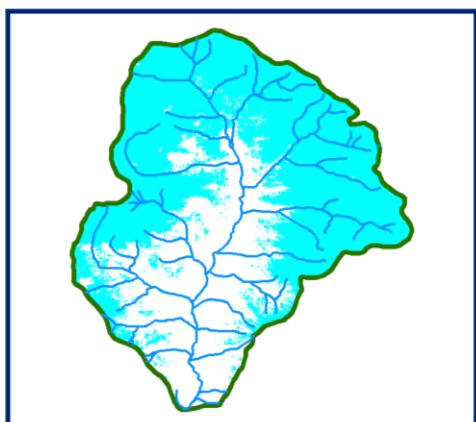
30 March 2014



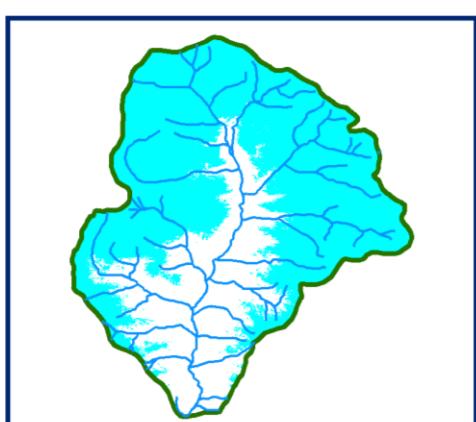
10 DAILY SNOW COVER MAP: BEAS BASIN



DATA USED
06 March 2014
07 March 2014



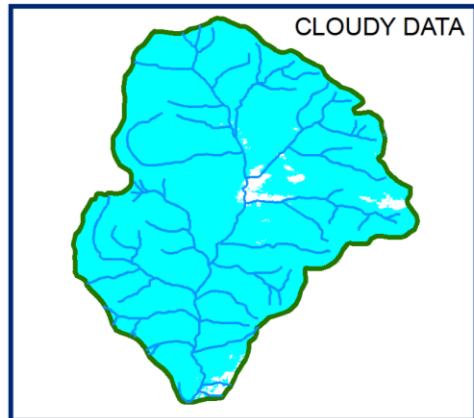
DATA USED
16 March 2014



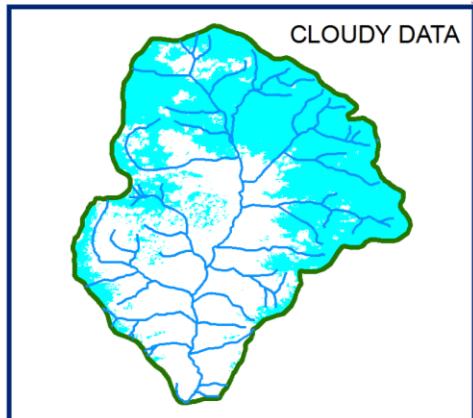
DATA USED
21 march 2014
30 March 2014
31 March 2014



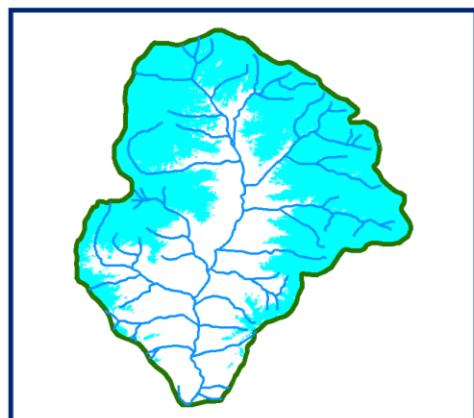
SNOW COVER MAP : BEAS BASIN



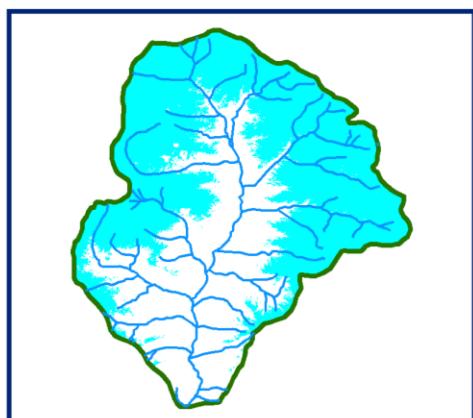
02 April 2014



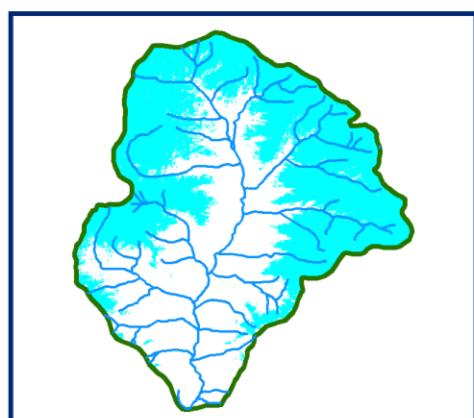
09 April 2014



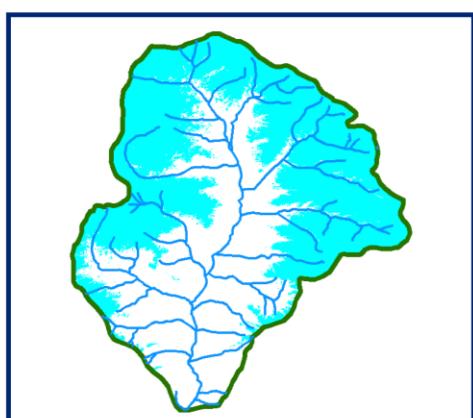
12 April 2014



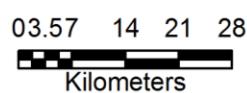
14 April 2014



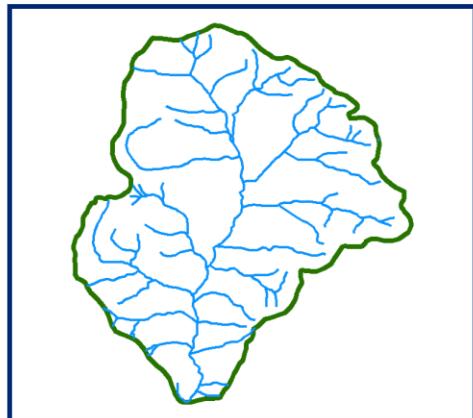
24 April 2014



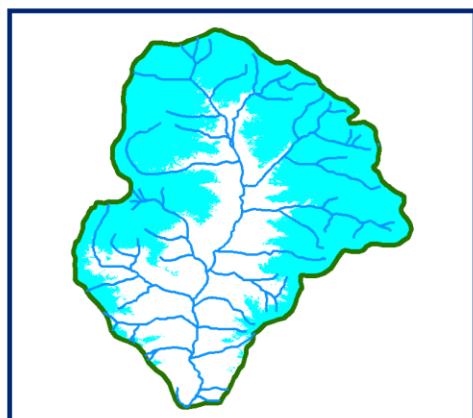
28 April 2014



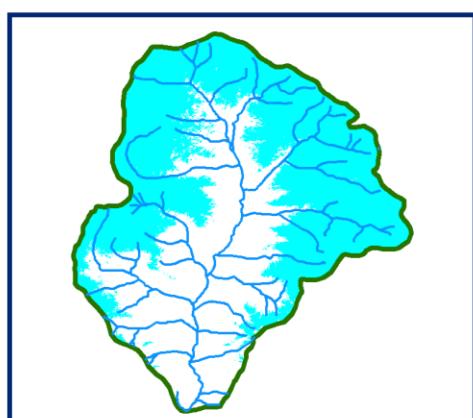
10 DAILY SNOW COVER MAP: BEAS BASIN



DATA USED
DATA NOT AVAILABLE



DATA USED
12 April 2014
14 April 2014



DATA USED
23 April 2014
24 April 2014
28 April 2014

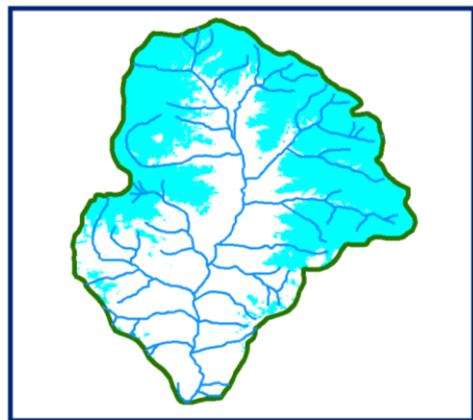


SNOW

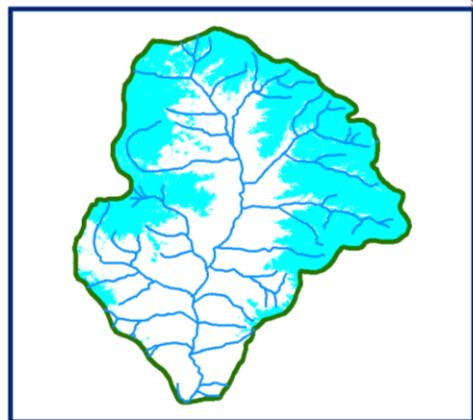
03.57 14 21 28
Kilometers

SNOW COVER MAP

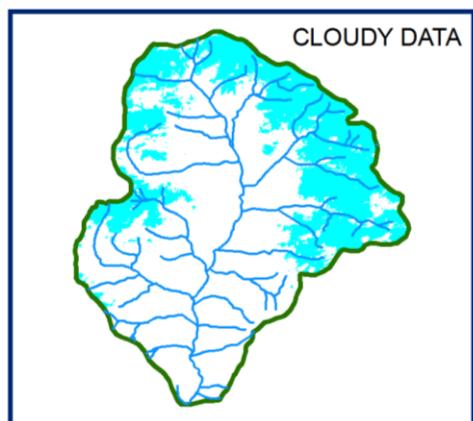
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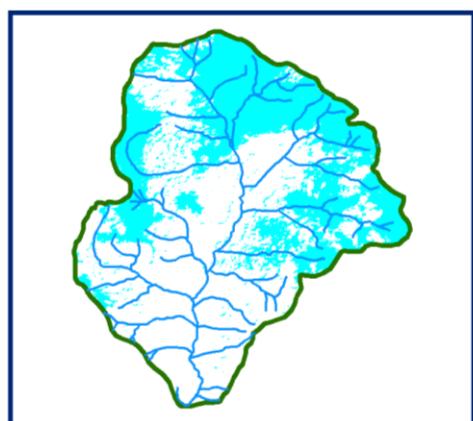
01 May 2014



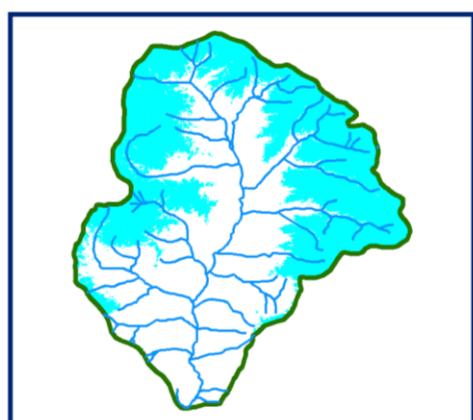
08 May 2014



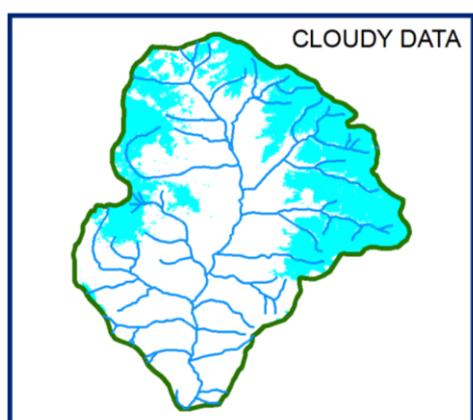
18 May 2014



20 May 2014



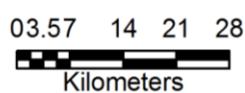
22 May 2014



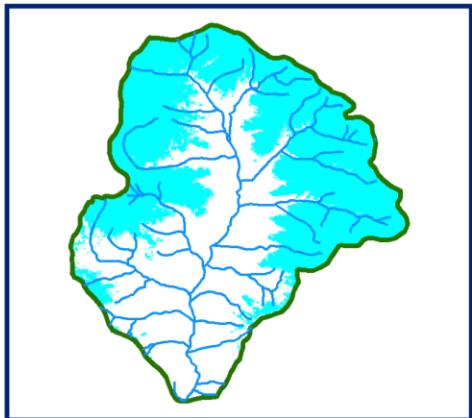
27 May 2014



SNOW



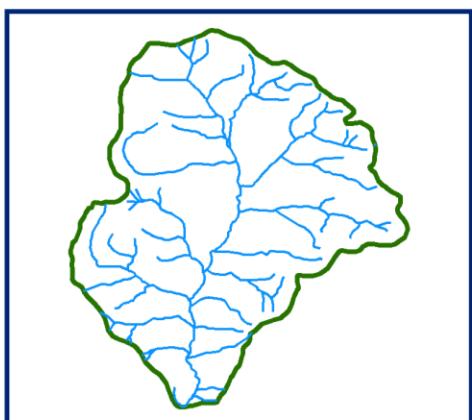
10 DAILY SNOW COVER MAP: BEAS BASIN



DATA USED

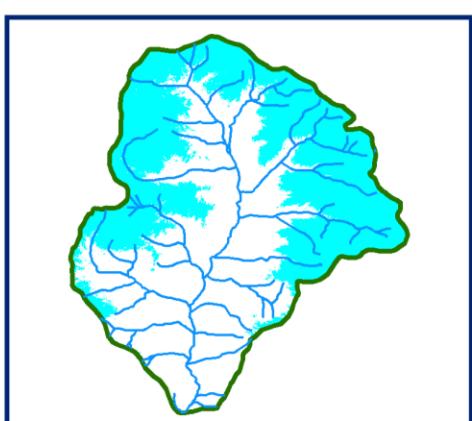
01 May 2014

08 May 2014



DATA USED

DATA NOT AVAILABLE



DATA USED

22 May 2014

25 May 2014

27 May 2014

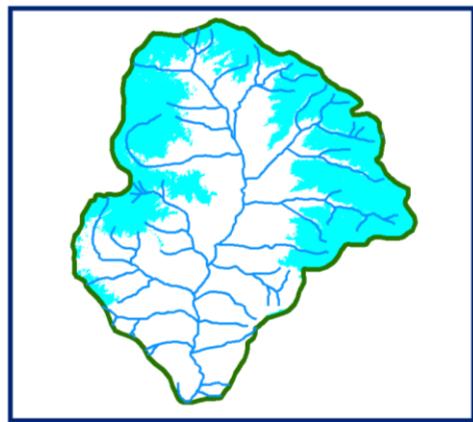


SNOW

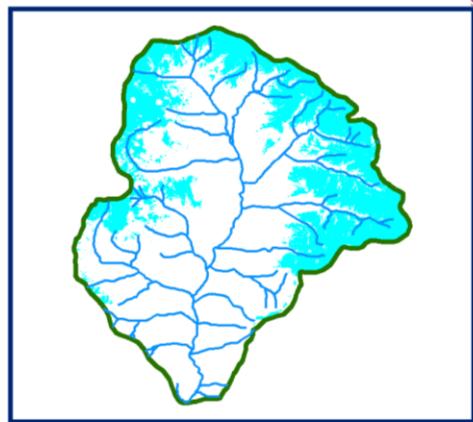
03.57 14 21 28
Kilometers

SNOW COVER MAP

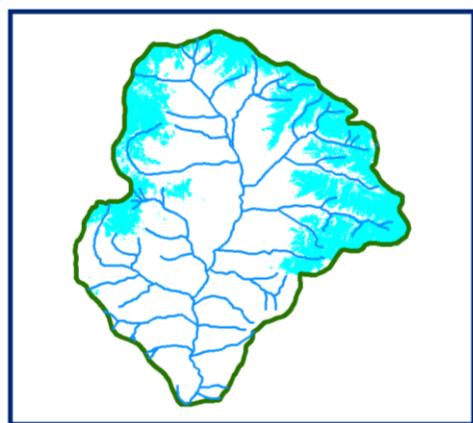
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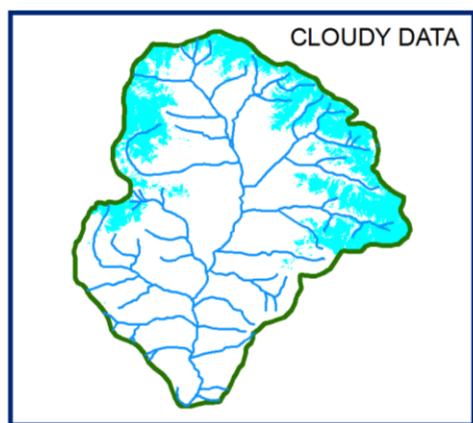
03 June 2014



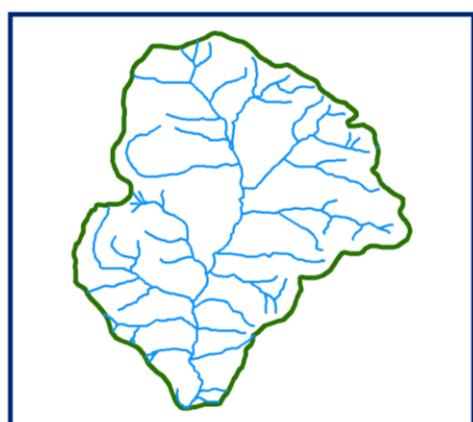
06 June 2014



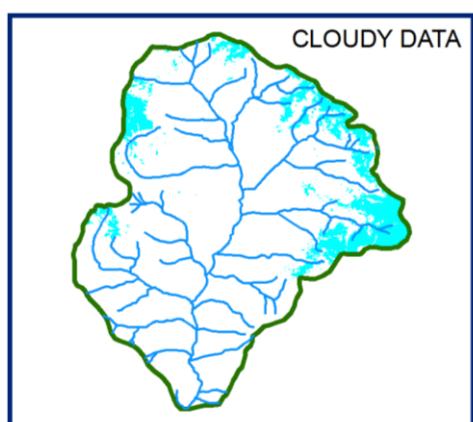
11 June 2014



16 June 2014



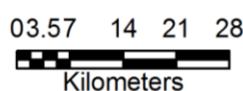
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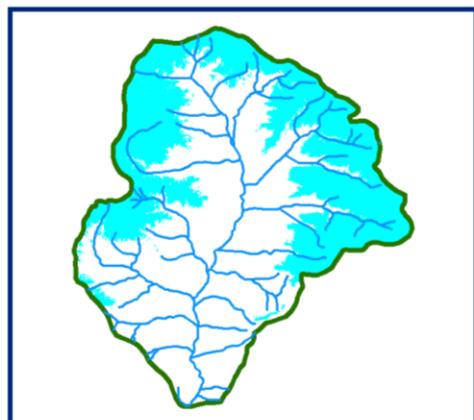
28 June 2014



SNOW



10 DAILY SNOW COVER MAP: BEAS BASIN

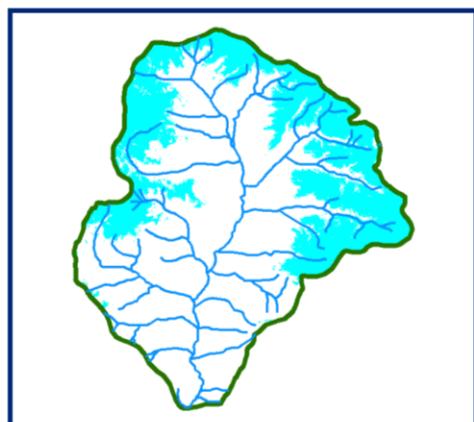


DATA USED

03 June 2014

04 June 2014

06 June 2014

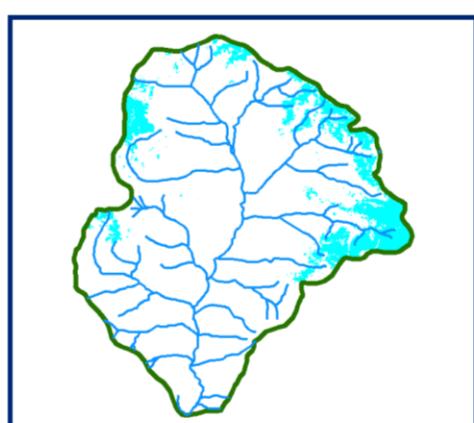


DATA USED

11 June 2014

13 June 2014

16 June 2014



DATA USED

28 June 2014



SNOW

03.57 14 21 28
Kilometers