INDIAN SPACE RESEARCH ORGANISTION

PHOTOSYNTHESIS IRRADIANCE INCUBATOR

Space Application Centre (ISRO), Ahmedabad has designed and developed a photosynthetic irradiance incubator (Photosynthetron) for marine and fish water applications. This is used to measure the photosynthetic-rate parameters (PI) of phytoplankton, the microscopic, photosynthesizing green plants of the ocean. PI parameters constitute an important element for modelling and estimating oceanic primary production using remote sensing dat. The lamp housing chamber, flat rectangular bottles on a movable rack, temperature sensor, submersible pump, motor and gear box.

Potential users

All laboratories, research institutes, universities involved in marine & oceanographic research especially in the area of primary production by phytoplankton and fisheries.

Method of Operation

- The photosynthetron incubates a sample of phytoplankton with tracer under controlled light gradient provided by a light source and a series of optical screens, designed to simulate light depths of aquatic environment.
- The incubation chamber houses linearly arranged twelve bottles on a rack containing phytoplankton sample and the rack is attached with a gear system for continuous tilting motion to allow phytoplankton to remain in suspension as in natural environment.
- The chamber is filled with water which is continuously circulating. A temperature sensor monitors the temperature of the water bath, which helps in maintaining the desired ambient water temperature for the samples. The period of incubation of the sample is programmable.

SAC Technologies

Technology Transfer

SAC/ISRO, offers to transfer this technology of the **Photosynthesis Irradiance Incubator** developed by SAC to industries in India with adequate experience and facilities. Enterprises interested in obtaining knowhow may write giving details of their present activities, infrastructure and facilities.

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