REMOTE SENSING in FISHERIES

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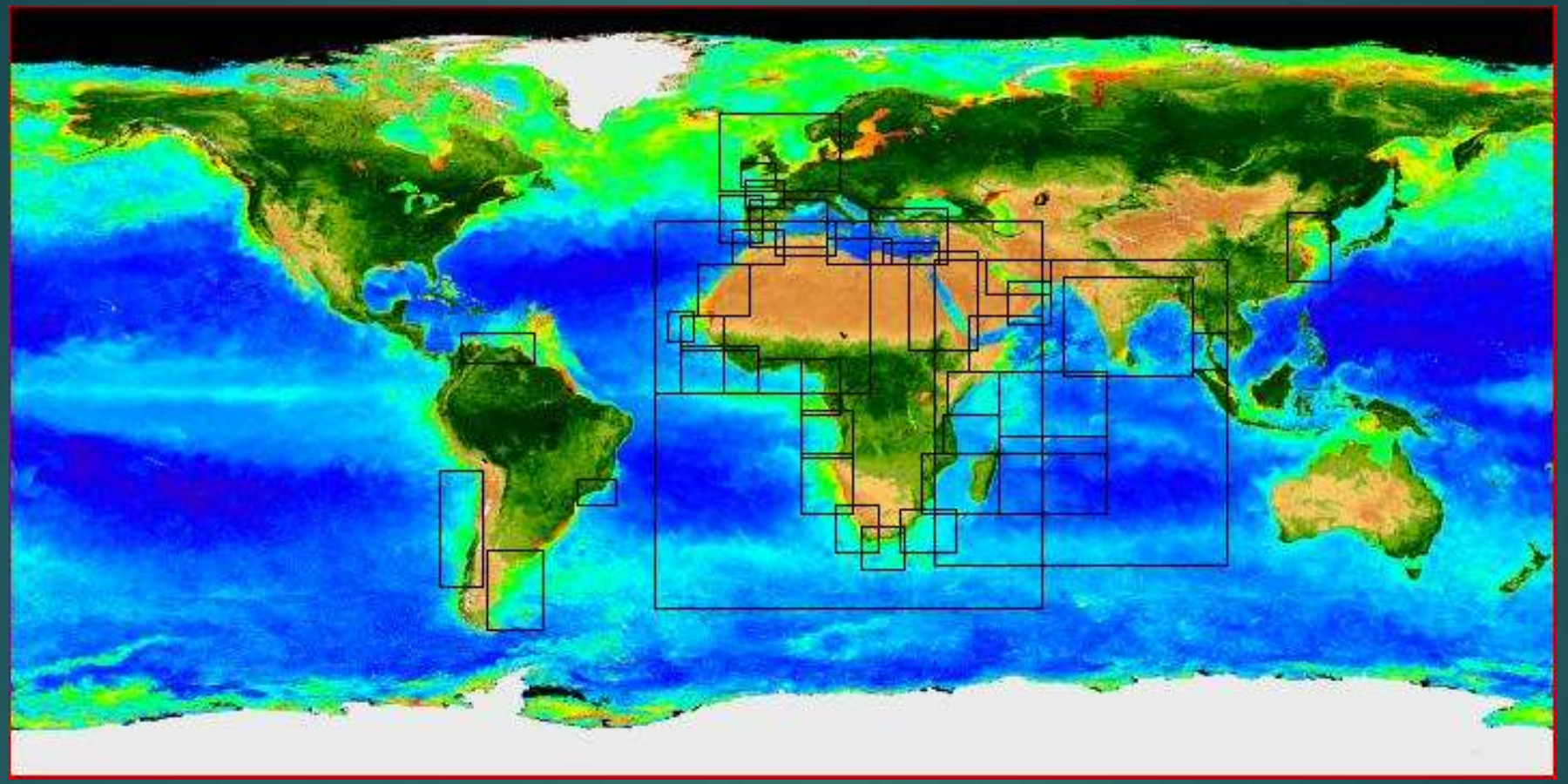
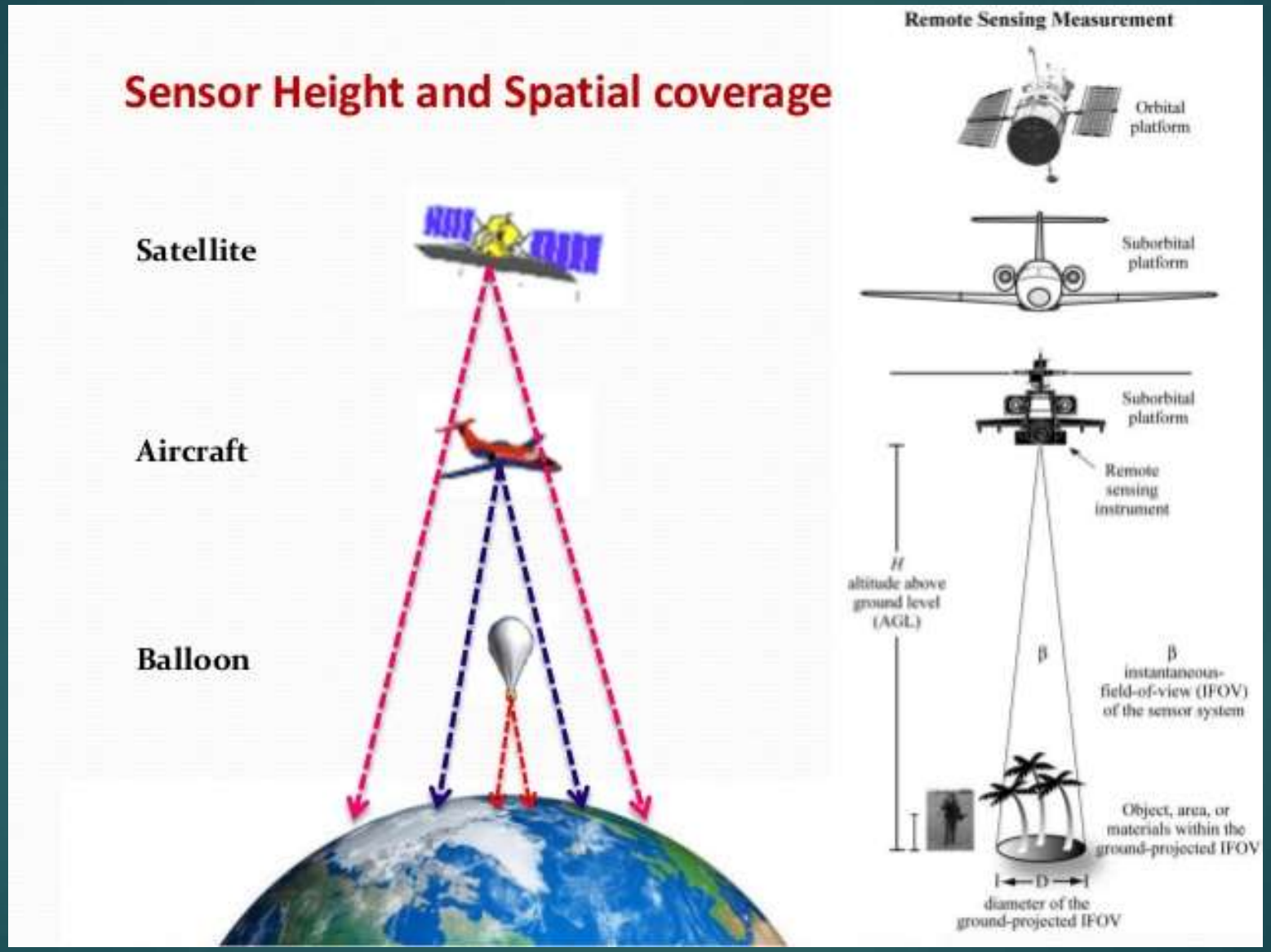
SENSOR PLATFORMS

- **Boats**
- Boats, buoys and submarines and other submersibles have been in use as remote sensing platforms for fifty years, primarily in conjunction with echo sounders and sonar. Sonar was developed in 1918 and was first used for fishery applications in the 1930's. Most modern fishing boats are equipped with echo sounders which utilize paper strip charts or cathode ray tubes (CRT) as display units. Now, however, sonar with audio systems is becoming popular as it is a quick and effective method of transmitting information.
- The use of buoys and submarines for visual or echo detection of fish has been mainly experimental. Echo sounders or sonar have been installed in submersibles towed at a distance from the mother ship to minimize the noise interference of the ship's engine on the target species. Submersibles such as RUFAS (Remote Underwater Fishery Assessment System), equipped with underwater TV cameras, have been used successfully in assessing scallop resources.



- **Balloons**
- Free floating or anchored balloons have been used to a limited extent for the aerial photography of water bodies such as bays and lakes to trace water circulation, sedimentation, etc.
- Balloons are of limited use for the remote sensing of vast ocean surfaces due to their instability and slow speed.

Sensor Height and Spatial coverage



- **Aircraft**
- Aircraft have been used extensively as remote sensing platforms for land and coastal mapping, oceanographic studies and the spotting of fish schools. This is one of the most efficient methods of remote sensing the earth's surface at larger scales. Aircraft have the advantage of optimizing data acquisition by providing operator access to the remote sensing instrumentation and by allowing a wide choice of acquisition parameters.

- A remote sensing mission can be performed over a particular area at a specified time (weather permitting) and may be repeated under controlled conditions. A suitable altitude can be chosen to optimize resolution and coverage area. Commercially available aircraft can reach an altitude of 15 km. Aircraft can be equipped with black and white, colour or colour infrared (CIR) photographic equipment, multispectral scanners or active sensors such as radar.

- The main disadvantages of remote sensing from aircraft are the instability of the platform, the limited geographic coverage (due to the relatively low altitude of the aircraft), the high cost and the dependence on weather conditions. This method, therefore, is used mainly for time- critical missions. When the mission requires repetitive imaging of the same area, the significantly lower access cost of satellite data generally is preferred.