

**MINISTRY OF EARTH SCIENCES
(PRITHVI VIGYAN MANTRALAYA)**

- I. ACTIVITIES RELATING TO OCEAN SCIENCE & TECHNOLOGY**
- 1. POLAR SCIENCE:** Questions relating to planning, coordination and launching of annual expeditions to Antarctica; conducting and supporting research in the area of Polar Science, such as Establishment of Ice Core Laboratory, Antarctic and Treaty System.
 - 2. OCEAN INFORMATION SERVICES:** Questions relating to Generation and dissemination of advisory services such as Potential Fishing Zone Information, Ocean State Forecast, Web based services, tsunami and storm surge early warning system, Collection of multi-disciplinary data through various platforms like ocean platforms, data buoys, argo floats, tide gauges, current meters and providing the data/Data Products.
 - 3. MARINE NON LIVING RESOURCES :** Research & Development in respect of non-living resources in the seas around India including the Central Indian Ocean Basin viz., Polymetallic nodules, Gas hydrates, Cobalt crust etc.; using various research vessels like Sagar Sampada, Sagar Kanya etc. Extraction of metals from the nodules by development of Metallurgical plants.
 - 4. MARINE LIVING RESEARCH:** Conducting multi-disciplinary surveys and analysis of related parameters towards understanding the available living resources in the seas around India including Southern Ocean; identifying the potential compounds from the Marine biota for development of drugs.
 - 5. OCEAN TECHNOLOGY:** Development of various technologies (crawler, ROV for harnessing the resources of the seas viz., desalination of sea water, mining of non-living resources like polymetallic nodules, Gas hydrates and ocean platforms like data buoys, argo floats, tide gauges, current meters, etc.
 - 6. COASTAL POLLUTION:** Monitoring of various coastal pollution parameters on periodical intervals in the coastal waters of India for understanding the health of the coastal seas of India, using coastal research vessels like Sagar Purvi and Paschmi.
 - 7. COASTAL MARINE AREA MANAGEMENT:** Development of tools using remote sensing and Geographical Information System for studying the coastal marine area management.

8. **SCIENTIFIC RESEARCH:** Extending support for conducting the basic Marine Scientific Research Projects through universities and other National Laboratories in the field of Marine Geology, Physics, Biology and Chemistry.
9. **MARINE SURVEYS:** Conducting various surveys for understanding the seabed features through swath bathymetry in the EEZ, Laxmi Basin etc. through existing vessels and acquisition of new vessels like Sagar Nidhi.
10. **INTERNATIONAL COOPERATION:** Questions relating to Intergovernmental Oceanographic Commission, International Seabed Authority, Antarctic Treaty System, South Asian Regional Seas Programme, etc.

II. ACTIVITIES RELATING TO ATMOSPHERIC SCIENCES & METEOROLOGY

11. **WEATHER FORECASTING:** Forecasting of storm, cyclones, severe weather conditions and occurrences of snow and avalanche. Forecast of timely disaster warning of severe weather phenomena.
12. **MOD OF IMD WEATHER SERVICES:** Modernization of IMD weather services in the country.
13. **RESEARCH AND DEVELOPMENT IN ATMOSPHERIC AND METEOROLOGICAL SCIENCES:** Research and study of Atmospheric and Meteorological Sciences, Study of air pollutants, etc.
14. **INTERNATIONAL CO-OPERATION IN THE FIELD OF WEATHER SCIENCES:** Co-operation with other countries in the field of Meteorology Instrument, Technology development, Seismology and Telecommunication along with Water Conservation, Water resources development and global warming.
15. **DOPPLER WEATHER RADARS:** Procurement and installation of Doppler Weather Radars in cyclone prone areas.
16. Numerical modelling for weather and climate.
17. **AGRO-METEOROLOGICAL ADVISORY SERVICES:** Agromet Advisory Services and other applications of numerical weather prediction.

18. Numerical modelling in support of early warnings for extreme weather events.

III. ACTIVITIES RELATED TO GEOSCIENCE.

19. Seismic Activities: Occurrences of earthquakes along with their intensity and epicentre and related questions on the risk evaluation.