

SSC Scientific Assistant (IMD) Exam 2026

Topic 2: Important Years, Dates, Milestones & Vision 2047

Comprehensive, High-Yield General Awareness Study Material & Reference Guide

HIGH-PRIORITY EXAM SCOPE: This document covers every critical milestone of the India Meteorological Department (IMD), its 150th Sesquicentennial Anniversary, the IMD Vision 2047 targets, the PRITHVI Vlgyan (PRITHVI) umbrella scheme outlay, Mission Mausam deliverables, SkyCast system, INSAT-3DS satellite, and Deep Ocean Mission. Essential for scoring 45+ in Paper-I General Awareness.

1. IMD Historical Evolution & Sesquicentennial Milestone (1875–2025)

Colonial Foundations (1864–1875): The establishment of the India Meteorological Department was triggered by severe tropical weather disasters in the mid-19th century. In October and November 1864, catastrophic cyclones struck Kolkata (causing over 80,000 deaths) and Machilipatnam (causing over 40,000 deaths). Widespread monsoon failures and droughts in 1866 and 1871 further convinced the British administration to establish a centralized weather observation agency. On **January 15, 1875**, the India Meteorological Department was officially established, starting with **77 surface observatories** under H. F. Blanford, the first Reporter in Meteorology.

Evolutionary Chronology:

- **1878:** India's first official rainfall map was published.
- **1886:** First operational long-range forecast of the Indian summer monsoon was issued by H. F. Blanford based on Himalayan snow cover.
- **1950:** Publication of *Journal Mausam*, IMD's premier international research journal, commenced.
- **1953 & 1958:** First storm detection radar installed at Dum Dum Airport (Kolkata) in 1953, followed by the first indigenous radar at Safdarjung (New Delhi) in 1958.
- **1970:** India's first S-band Cyclone Detection Radar (CDR) commissioned at Visakhapatnam.
- **2002:** Country's first Doppler Weather Radar (DWR) commissioned at Chennai, revolutionizing tropical cyclone tracking.

150th Foundation Day Celebrations (January 15, 2025):

- **Venue & Dignitaries:** Celebrated at **Bharat Mandapam, New Delhi** in the presence of Prime Minister Narendra Modi, Union Minister Dr. Jitendra Singh, WMO Secretary-General Prof. Celeste Saulo, and IMD Director General Dr. Mrutyunjay Mohapatra.
- **Commemorative Silver Coin:** Legal tender coin with a denomination of **₹150** released. Minted in **99.99% pure silver**, circular shape, weighing **40 grams**, featuring the Ashoka Pillar on the obverse and the 150-year IMD logo on the reverse.
- **Commemorative Postage Stamp:** Special **₹5 denomination** postage stamp released.
- **Journal Mausam Platinum Jubilee:** Celebrated **75 years** (1950–2025) of continuous publication.
- **Observational Growth:** Manned observatories expanded from 77 in 1875 to **550 manned observatories**,

over **1,500 Automatic Weather Stations (AWS)**, and **6,100+ rain gauges**.

2. IMD Vision 2047 & Strategic Targets

Prime Minister Narendra Modi unveiled the '**IMD Vision 2047**' document during the 150th anniversary celebrations to prepare India for climate resilience as the nation approaches its centenary of independence in 2047. Key operational benchmarks include:

Target Timeframe	Target Accuracy Benchmark	Operational Coverage Focus
1 to 3 Days Forecast	100% Accuracy Target	Panchayat & Block level extreme weather alerts
5 Days Forecast	90% Accuracy Target	District-level severe weather advisories
7 Days Forecast	80% Accuracy Target	Regional & State-level meteorological outlooks
10 Days Forecast	70% Accuracy Target	Extended-range monsoon & synoptic scale tracking
Warning Lead Time	10 to 15 Days in Advance	Early warning for cyclones, heatwaves & floods
Disaster Loss Goal	Zero Disaster Mortality	Proactive mitigation to eliminate weather fatalities

3. PRITHvi Vigyan (PRITHVI) Umbrella Scheme (2021–2026)

Approved by the Union Cabinet on **January 5, 2024**, the **PRITHvi Vigyan (PRITHVI)** scheme is an overarching initiative of the Ministry of Earth Sciences (MoES) implemented for the period **2021–2026** (15th Finance Commission cycle) with a total sanctioned outlay of **■4,797 Crore**. It integrates five major sub-schemes to address all five components of the Earth System: Atmosphere, Hydrosphere, Geosphere, Cryosphere, and Biosphere.

Sub-Scheme	Full Title & Scope	Budget / Key Institutes	Primary Operational Focus
ACROSS	Atmosphere & Climate Research-Modelling Observing Systems & Services	■2,135 Crore Outlay (IMD, IITM, NCMRWF)	Numerical Weather Prediction (NWP), Doppler Radar expansion, monsoon dynamics.
O-SMART	Ocean Services, Modelling Application, Resources and Technology	INCOIS, NIOT, CMLRE	Tsunami early warning, Potential Fishing Zone (PFZ) advisories, deep-sea technology.
PACER	Polar Science and Cryosphere Research	NCPOR (Goa)	Antarctic stations (Maitri, Bharati), Arctic station (Himadri), Himalayan glaciers.
SAGE	Seismology and Geosciences	NCS, NCESS	24/7 National Seismological Network (158+ observatories), seismic microzonation.

Sub-Scheme	Full Title & Scope	Budget / Key Institutes	Primary Operational Focus
REACHOUT	Research, Education, Training and Outreach	MoES Core Units	Extramural R&D; grants, university research seeding, ESSO Olympiad, capacity building.

4. Mission Mausam & Advanced Technological Infrastructure

Cabinet approved in **September 2024** with an initial allocation of **■2,000 Crore** for the first two years (2024–2026), **Mission Mausam** is India's flagship initiative led by IMD, IITM Pune, and NCMRWF Noida to make India 'Weather-Ready and Climate-Smart'.

Key Deliverables & Technology Infrastructure under Mission Mausam:

- **Implementation Phases:** *Phase 1 (2024–March 2026)* focuses on expanding observational networks and physical cloud simulation. *Phase 2 (2026 onwards)* adds research aircraft, cloud seeding platforms, and specialized satellite payloads.
- **SkyCast System:** Inaugurated by Union Minister Dr. Jitendra Singh at **Indira Gandhi International (IGI) Airport, New Delhi**. It is India's first integrated aviation weather system monitoring the boundary layer up to **3 km altitude** using SODAR, Radar Wind Profiler, Microwave Radiometer, GFAS (Ground-based Fog Aerosol Spectrometer), and CL61 Lidar Ceilometer.
- **Cloud Chamber Facility:** A specialized cylindrical pressure vessel established at **IITM Pune** to study monsoon cloud physics, droplet growth, and aerosol-cloud interactions.
- **3D-Printed AWS (3D-PAWS):** India's first 3D-printed Automatic Weather Station installed at IMD HQ, New Delhi, offering nearly 90% cost reduction adhering to WMO standards.
- **Doppler Weather Radar (DWR) Network Expansion:** Adding **56 new Doppler radars** across India by 2026 (including X-band DWRs in Wayanad and Lahaul-Spiti, C-band DWR in Mangaluru).
- **Bharat Climate Observation Network (BCON):** 50-year strategic MoU between IITM Pune and ARIES Nainital (Devasthal) for long-term climate monitoring.
- **Mausamgram Platform:** Hyperlocal village and PIN-code level weather forecast system ('Har Har Mausam, Har Ghar Mausam').

5. Spaceborne & Deep Ocean Frontiers (INSAT-3DS & Matsya 6000)

INSAT-3DS Satellite Mission:

- **Launch Date & Vehicle:** Successfully launched on **February 17, 2024** aboard **GSLV-F14** from SDSC SHAR, Sriharikota into Geostationary Orbit (35,786 km).
- **Spacecraft Specs:** Configured on ISRO's **I-2K bus** with a lift-off mass of **2,275 kg** (420 Tonnes rocket lift-off mass) and an operational life of **10 years**.
- **Payloads:** 6-channel **Imager**, 19-channel **Sounder** (18 IR + 1 Visible channel), **Data Relay Transponder (DRT)**, and **Satellite Aided Search & Rescue (SAS&R;)**.
- **Key Data Products:** Sea Surface Temperature (SST), Outgoing Longwave Radiation (OLR), Quantitative Precipitation Estimation (QPE), Cloud Motion Vectors, UTH, and vertical atmospheric soundings.

Deep Ocean Mission (DOM) & Samudrayaan Project:

- **Matsya 6000:** India's first indigenous manned submersible vehicle developed by the **National Institute of Ocean Technology (NIOT), Chennai**.
- **Key Specs:** Designed to carry **3 aquanauts to a depth of 6,000 meters** beneath sea level. Features a 2.1-meter diameter **Titanium alloy hull** to withstand 600 bar sea pressure.
- **Deep Ocean Mission Budget:** Total approved cost of **■4,077 Crore** over 5 years under MoES.

6. High-Yield Practice MCQs for SSC IMD Exam 2026

Test your preparation with these exam-pattern multiple choice questions based on the latest syllabus:

Q1. On which date was the India Meteorological Department (IMD) established, and what milestone did it celebrate in 2025?

- A) 15th January 1875; 150th Foundation Day
- B) 26th January 1950; 75th Foundation Day
- C) 15th August 1947; 100th Foundation Day
- D) 1st April 1935; 90th Foundation Day

Answer: A | Explanation: IMD was established on January 15, 1875, and celebrated its 150th Sesquicentennial Anniversary on January 15, 2025.

Q2. What is the denomination and metal purity of the commemorative coin released by the GoI to mark 150 years of IMD?

- A) ■100 denomination; 90% Silver
- B) ■150 denomination; 99.99% Pure Silver (40g)
- C) ■75 denomination; Commemorative Nickel
- D) ■200 denomination; Gold Plated Silver

Answer: B | Explanation: The GoI issued a legal tender ■150 commemorative coin minted in 99.99% pure silver weighing 40 grams.

Q3. Under 'IMD Vision 2047', what is the target forecast accuracy set for weather events up to 3 days in advance?

- A) 80% Accuracy
- B) 90% Accuracy
- C) 100% Accuracy
- D) 70% Accuracy

Answer: C | Explanation: IMD Vision 2047 targets 100% accuracy for up to 3 days, 90% for up to 5 days, 80% for 7 days, and 70% for 10 days.

Q4. What is the total financial outlay approved for the overarching 'PRITHvi Vigyan (PRITHVI)' scheme for the 2021–2026 period?

- A) ■2,000 Crore
- B) ■4,797 Crore
- C) ■10,372 Crore
- D) ■3,648 Crore

Answer: B | Explanation: The Cabinet approved PRITHVI scheme on Jan 5, 2024, with a total cost of ■4,797 Crore over 2021–2026.

Q5. India's first integrated aviation weather intelligence system, 'SkyCast', was inaugurated at which airport under Mission Mausam?

- A) Chhatrapati Shivaji Maharaj Airport, Mumbai
- B) Kempegowda Airport, Bengaluru
- C) Indira Gandhi International (IGI) Airport, New Delhi
- D) Netaji Subhash Chandra Bose Airport, Kolkata

Answer: C | Explanation: SkyCast was inaugurated at IGI Airport New Delhi to monitor boundary layer aviation weather up to 3 km.

Q6. Which launch vehicle was used by ISRO to launch the dedicated meteorological satellite INSAT-3DS on February 17, 2024?

- A) PSLV-C58
- B) GSLV-F14
- C) LVM3-M4
- D) SSLV-D2

Answer: B | Explanation: INSAT-3DS (2,275 kg) was successfully launched into Geostationary Transfer Orbit by GSLV-F14.