**BIODATA OF DR. SHAILESH NAYAK**

1. **Name**: SHAILESH NAYAK

Director, National Institute of Advanced Studies

&

 Distinguished Scientist,

 Ministry of Earth Sciences

1. **Date of birth**: 21 August, 1953

**3.** **Address**: Indian Institute of Science Campus,

 Bengaluru 560 012

 &

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1. **Biographical Information:**
	* 1. **Subject: Earth System Sciences**

Specialization: Oceanography/Remote Sensing

Area(s) of Research: Coastal and Ocean processes, air-sea interaction, coastal hazards, coastal geomorphology, geological/geomorphic processes.

* + 1. **Academic Qualification:**

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| --- | --- | --- | --- | --- | --- | --- |
| S. No | Degree | Subjects | Class/Marks % | Year | University | Additional particulars/Rank |
| 1 | Ph. D.\* | Geology | - | 1980 | M. S. University of Baroda, Vadodara | - |
| 2 | M. Sc. | Geology | First with Distinction, 70 % | 1975 | M. S. University of Baroda, Vadodara | First |
| 3 | B. Sc. | Geology, Physics, Chemistry | First,62.7 % | 1973 | M. S. University of Baroda, Vadodara | - |

\*Geology of the bauxite deposits of Kutch and Valsad districts (Gujarat State) with special reference to their mode of occurrence, genesis and economic utility.

* + 1. **Positions Held**

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| **Year** | **Institute** | **Position Held** |
| March, 2018 onwards  | National Institute of Advanced Studies, Bengaluru | Director |
| Jan, 2016 -Onwards | 36th International Geological Congress | President |
| Oct, 2015 | Ministry of Earth Sciences (MoES) | Distinguished Scientist |
| Aug,2008 – Aug 2015 | Ministry of Earth Sciences (MoES) | Secretary, MoESChairman, Earth Commission |
| May 2006 | Indian National Centre for Ocean Information Centre (INCOIS), MoES | Director |
| July, 2003 | Space Applications Centre (ISRO) | Scientist ‘G’ (promoted to Scientist ‘H” from Jan, 2007) |
| Feb. 2001 | Space Applications Centre (ISRO) | Group Director, Marine & Water Resources |
| Jul. 1998 | Space Applications Centre (ISRO) | Scientist ‘SG’ |
| Jun 1998 | Space Applications Centre (ISRO) | Head, Marine & Water Resources |
| Jan. 1993 | Space Applications Centre (ISRO) | Scientist ‘SF’ |
| Jan. 1989 | Space Applications Centre (ISRO) | Scientist ‘SE’ |
| Jan. 1985 | Space Applications Centre (ISRO)  | Scientist ‘SD’ |
| Apr. 1981 | Space Applications Centre (ISRO)  | Scientist ‘SC’ |
| Jan. 1978 | Space Applications Centre (ISRO)  | Scientific Asst. ‘C’ |
| Mar. 1977 | Gujarat Engineering Research Institute | Senior Scientific Asst. |

* + 1. **Professional recognitions (honors, awards, prizes, honorary degrees**

**Fellowships**

1. Academician, International Academy of Astronautics, Paris.
2. Fellow, Indian Academy of Sciences, Bengaluru.
3. Fellow, The National Academy of Sciences, India, Allahabad
4. Fellow, International Society of Photogrammetry and Remote Sensing.
5. Fellow, Gujarat Academy of Sciences, Ahmedabad.
6. Fellow, Indian Society of Remote Sensing, Dehradun.
7. Fellow, Geological Society of India, Bangalore.
8. Fellow, Indian Meteorological Society.
9. Fellow, Indian Society of Geomatics, Ahmedabad.
10. Fellow, Mineralogical Society of India, Mysore.

**b) Honorary Degrees**

1. Honorary Degree of Doctor of Science, Assam University, 2013.
2. Honorary Degree of Doctor of Science, Andhra University, 2011.
3. Honorary Degree of Doctor of Science, Amity University, 2014.

**c) Awards**

1. Indian Geophysical Union's -Hari Narain Lifetime Achievement Award in Geosciences-2013,
2. Vikram Sarabhai Memorial Award for 2011-12, by Indian Science Congress Association, 2012.
3. Bhaskara Award – 2010, Indian Society of Remote Sensing, Dehradun.
4. National Mineral Award-2005, (Applied Geology) Ministry of Mines, Govt. of India
5. Indian National Remote Sensing Award, 1994, Indian Society of Remote Sensing, Dehradun.
6. Hari-Om Ashram Prerit Inter-University Smarak Trust Prize 1981-82 for Geology
7. Dinesh Chokshi Memorial prize for highest marks in M. Sc. (Geology) in 1975.
8. Indian Space Research Organization's Team Award-2008. Snow and Glacier project. Bangalore.
9. Dept. of IT and Communications, Government of India, *Web Ratna 09 Platinum Award* for Excellence in E-Governance Initiatives for Tsunami Early Warning System Project under the category “Innovative Use of Technology”. April 19, 2010. (Team award)
10. Indian Space Research Organisation Team Award-2007, Rajiv Gandhi National Drinking Water Mission Project, Bangalore.
11. Special Achievemnt in GIS (S.A.G.) Award -2008, E.S.R.I., San Diego, USA (for Tsunami Warning Centre)
12. Geospatial Solution of the Year for Tsunami Warning System, 2008 (Team Award to INCOIS) by Geospatial Today Magazine, Hyderabad.
13. Skoch Challenger Award for Security and Disaster Management, Jan. 2009 (for setting up Tsunami Warning Centre) by Skoch Development Foundation, New Delhi.
14. PC Quest. Cyber Media (India) Ltd. Special Mention E-Govt. Projects: INCOIS’ Tsunami Warning System.

**d) Convocation Addresses and Award lectures**

Convocation Lecture, 35th Convocation of the Deen Dayal Upadhyay Gorakhpur University, March 25, 2017.

K. D. Malaviya Memorial Lecture. Probing Deep Earth: A Perspective. R& D Meet of ONGC Institutes and KDMPIE Foundation Day. K. D. Malaviya Institute of Petroleum Exploration, Dehradun. December 19, 2016.

1. Towards Blue Economy: Role of GIS. First Dr. Roger Tomlinson Memorial Talk, ESRI India Technologies Ltd. Delhi. December 3, 2015.
2. Distinguished Lecture on Public Policy for Integrating Geo-science Research to Societal Benefits: The Indian Perspective.  2015 AOGS Conference. Asia Oceania Geoscience Society, Singapore. August 6, 2015.
3. Plenary Lecture on Opportunities and Challenges in Earth System Science Research in India. XII International Symposium on Antarctic Earth Science. Scientific Committee on Antarctic Research, Goa. July 13, 2015.
4. India's Global Engagement in Earth System Science. Vikram Sarabhai Memorial Lecture. Indian Society of Remote Sensing. December 9, 2014.
5. Towards Stewardship of Oceans. 23rd Vikram Sarabhai Memorial Lecture. Indian Society of Remote Sensing. Andhra University. Visakhapatnam. December 5, 2013.
6. P.R. Pisharoty Memorial Lecture, Keral a Congress on Earth System Science: perspective. January 29, 2012
7. 48th Convocation Address. Shivaji University, Kolhapur. January 25, 2012.
8. Earth System Science: A Perspective. Platinum Jubilee  Lecture, Earth  System Science Session, 99th Science Congress, Bhubaneswar. January 4, 2012.
9. 79th Convocation Address,*Climate Change and Humanity*. Annamalai University, November, 9, 2011.
10. Prof. R. Vaidyanathan Lecture, Geological Society of India, on Remote Sensing for Coastal Geomorphology., Visakhapatnam. September 26, 2011
11. Managing Earth System Geospatially. Todarmal Lecture Series, XXX INCA International Congress, Dehradun. November 10, 2010
12. Indian Society of Geomatics Millennium Lecture,. Impact of Climate Change on Coastal Zone. Ahmedabad, February, 4, 2010.
13. H. Sidique Memorial Lecture and Gold Medal of Indian Geophysical Union. “Ocean and Society’. Wadia Institute of Himalayan Geology, Dehradun. October 5, 2009.
14. Birbal Sahni Institute of Paleobotany Foundation Day Lecture. ‘Towards Climate Information and Services’, Lucknow, September 10, 2009.
15. 26th Convocation Address, Gandhigram University, Gandhigram, on ‘Earth Science and Rural Development’, July 18, 2009.
16. Indian Society of Remote Sensing Pisharoty Memorial Lecture The Planet Earth: Finite Resources and Civilizations, April 24, 2009, Ahmedabad.
17. Indian Geological Congress 12th Foundation Lecture of IGC on Tsunami warning System for the Indian Ocean. 16th Convention of the Indian Geological Congress, National Geophysical Research Institute, Hyderabad, February 2, 2009.
18. Indian National Cartographic Association (INCA) Dr. S.P. Chatterjee Memorial Lecture on ‘Remote Sensing and GIS for Coastal Zone Management’, November 22, 2007, Visakhapatanam.

**v) Membership of Academic/Professional Bodies:**

* Life Member, Indian Geological Congress, Roorkee (LM-85a)
* Life Member, Indian Society of Remote Sensing, Dehradun
* Life Member, Indian Society of Geomatics, Ahmedabad
* Life Member, Mangrove Society of India, Goa
* Life Member, Astronautical Society of India, Bangalore
* Life Member, Ocean Society of India (O-071)

**5. Intellectual property, technological innovations, new products etc.**

Conceptualized, installed and operationalized the Tsunami Early Warning system for India

Algorithms and software for retrieving bio-geo-chemical parameters from ocean colour sensors has been provided to many institutions in the country.

Satellite based technique for identifying potential fishing grounds has been operationally being utilized by the Indian National Centre for Ocean Information Services (INCOIS) for providing forecast to fishermen for the entire Indian coast.

GIS-based model for selecting suitable sites for brackish water aquaculture

**Major R & D projects/programmes implemented/being Implemented**

Conceptualised, executed and guided and provided leadership to following national level projects by involving many national and state level institutions in the field of coastal and marine environment.

As the Secretary, MoES, Dr. Shailesh Nayak has initiated several new programmes/centres/activities relating to Global change and use of earth system science for overall societal benefits. To name a few, monsoon mission, severe weather, Arctic research, evolution of Himalayas, earthquake research, ocean biogeochemistry, ocean ecosystem including modelling, multi-hazard warning system, marine resources and Antarctica data base organization and management, web and location-based services, building HPC infrastructure, development of human resources, etc. Due to his efforts, the forecast for weather, climate and hazards has improved considerably. A Centre for Climate Change Research has been established in Pune. A National Centre for Seismology is being set up. The setting up of a Coastal Research Centre has been initiated. A Training School for Climate and Earth System is being set up in Pune. He has initiated discussions and the preparation of a National Vision document on the role Earth Sciences should play in national issues. He also led an expert group for setting up National-GIS which is now under implementation.

As Project Director, Early Warning System for Tsunami and Storm Surge, May 2006, planned and implemented an Early Warning System involving network of seismic stations, tidal stations, bottom pressure recorders, and real time analysis of data, modelling of travel time, propagation of tsunami wave and inundation and generation of high resolution bathymetry and coastal topography data. The work involved direction, guidance, coordination of three departments/ministries and fourteen national institutions involving more than 300 scientists to design, develop and making such system operational in record time of 10 months at a cost of Rs.125 crores. Two major R & D projects, on the tectonic modelling of the Andaman Trench and History of Tsunami have been conceptualised and being implemented through NGRI, PRL, NCAOR, IITs and academic institutions. The capability of India was effectively represented in international fora. One of the major achievements was that the project was executed without any increase in the cost of the project.

Project Director, Argo Project, organized activities related to deployment of ARGO floats in the Indian Ocean, reception and processing data in near real time, quality checks, generation of products and applications. Various applications of Argo data are being developed.

As Director, INCOIS, provided direction and guidance for the societal services in the field of Potential Fishing Zone and Ocean State Forecast Advisories. The success of PFZ advisories is around 74 per cent and led to savings in time and fuel. Due to innovative methods, the user base in fishermen was increased to 27 per cent. The OSF is being widely used by shipping, Coast Guards and the Indian Navy.

A project on ‘Chlorophyll Monitoring of the Indian Ocean’ was conceptualised and being implemented using MODIS/OCM data. The project is envisaged to help to monitor ecosystem health and will provide input for ecosystem modelling.

As Director of INCOIS, various steps were taken to increase activities in operational oceanography.

Principal Investigator, Jan. 2004 - April 2006, Coastal Studies (inventory, zonation of coral reefs and mangroves, coastal geomorphology, sea level rise, shoreline change, coastal zone information system), and Snow and Glacier Studies (snow monitoring, glacier inventory and retreat, mass balance, information system) Funded by the Ministry of Environment and Forests, Govt. of India (Rs. 30 crores).

Focal Point, Meteorology and Oceanography Programme (funded by ISRO), and Satellite Coastal and Oceanographic Research. Funded by the Dept. of Ocean Development, GOI. 2003 to April 2006, Biological and Geological Oceanography component and Development of Cal Val site in the Lakshadweep Sea (Rs. 5 crores)

Deputy Project Director, Satellite Coastal and Oceanographic Research. Funded by the Dept. of Ocean Development, GOI. Indian Remote Sensing Satellite (IRS) – P4 OCM Utilisation, ISRO. 1998-2003. Development of algorithms for retrieving bio-geo-chemical parameters from Ocean Colour Monitor (OCM), its validation and operationalization, development of methodology for of application of OCM data for fisheries and coastal processes (Rs. 7 Crores).

Focal Point. Development Plans of Kachchh District. Preparation of land and water resources development plans. 2001-2004 (Rs. 2.25 crores).

Deputy Project Director, Integrated Coastal and Marine Area Management Project, Funded by the Dept. of Ocean Development. GOI. 1998-2003. Development of methodology for eco-geomorphological zonation of mangroves and coral reefs using Indian Remote Sensing data (Rs. 1 Crore).

Principal Investigator, Coastal Zone Development. Joint project SPARRSO, Bangladesh and ISRO. Funded BY UN-ESCAP. 1997-2000. Transfer of technology to SPARRSO for coastal studies and specifically selection of brackish water aquaculture sites.

Principal Investigator, IRS P3 Validation Experiment – Ocean. Joint Project DLR, Germany and ISRO. 1995-98. Development of algorithms for retrieving bio-geo-chemical parameters and standardising validation procedures using MOS-B data Rs. 30 Lakhs).

Project Leader; Land Use Mapping of Coastal Regulation Zone, Funded by the Ministry of Environment and Forests, GOI. 1993-1997. Developed techniques to delineate high tide line and low tide line using satellite data and generated database for the entire country’s coastline on 1:25,000 scale and GIS based model for classifying coastal zone for managing coastal zone (Rs. 30 Lakhs).

Principal Investigator, Coastal Studies, Funded by the Dept. of Ocean development, GOI. 1990-1995. Developed methodology for identifying coral reef features and generated data base on coral reef, mangroves and areas under erosion and deposition on 1:50,000 scale for the entire country’s coastline Rs. 50 Lakhs).

Project Leader, Coastal Land Use Mapping for Brackish Water Aquaculture Site Selection, Remote Sensing Application Mission, Funded By the Ministry of Agriculture, GOI.1990-94. Generated data base on coastal land use on 1:50,000 scale and developed a model to integrate satellite-based information with *in situ* information on ecology, infrastructure, etc. to select sites for brackish water aquaculture (Rs. 30 Lakhs).

Project Leader, Coastal Environment, Remote Sensing Applications Mission (RSAM), Funded by the Ministry of Environment and Forests, Govt. of India (GOI). 1988-92. Generated database on coastal wetland/landform and shoreline change on 1:250,000 scale for the entire country’s coastline Rs. 18 Lakhs).

Principal Investigator, Monitoring of Coastal Environment, Indian Remote Sensing Utilization Programme (IRS-UP), ISRO. 1984-1990. Developed methodology and classification system for identifying coastal wetland and landform and shoreline change. Prepared a detailed manual for the same (Rs. 32 Lakhs).

Principal Investigator, Coastal Morphology: A Case Study in the Gulf of Khambhat. End-to-End Experiment, National Natural Resources Management System, Indian Space Research Organisation (ISRO). 1983.

**7. List of ten important publications and/or patents: including (a) name of author(s), (b) year, (c) title, name of journal, (d) volume and pages.**

**(h-index 28; i-10 index 78, citations >2540)**

1. **Nayak, S**. and Srinivasa Kumar, T. 2011. *Tsunami Watch and Warning Centres*; In Encyclopedia of Solid Earth Geophysics. In: Gupta, Harsh K. (ed.), Springer Dordrecht, Vol. 2, pp. 1498-1505 (invited contribution)
2. Srinivaskumar, T., Mahendra, R.S., **Nayak, S.**, Radhakrishnan, K., Sahu, K.C. 2010. *Coastal vulnerability assessment for Orissa State, East Coast of India*. Jour. of Coastal Research. 26(3):523-534. (IF: 1.366, cited 124 times)
3. **Nayak, S.** 2009. *Application of Remote Sensing and GIS for Coastal Zone Management*. In the Manual of Geographic Information Systems (ed. M. Madden), The American Society for Photogrammetry and Remote Sensing, Bethesda, MD. pp. 1075-1094 (Invited contribution) (IF: 0.614)
4. Vinaychandran, P. N., Chauhan, P., Mohan, M. and **Nayak, S.** 2004. *Biological response of sea around Sri Lanka to summer monsoon*. Geophysical Research Letters, 31:L01302. 2004. (IF: 3.204, cited 73 times)
5. Chauhan, P., Mohan, M., Sarangi, R. K., Beenakumari, **Nayak, S.** and Matondkar, S. G. P. 2002 *Surface chlorophyll a estimation in the Arabian Sea using IRS P4 Ocean Colour Monitor (OCM) satellite data*. Inter. Jour. of Remote Sensing*.* 23(8):1663-1676. 2002 (IF: 1.084, cited 79 times)
6. **Nayak, S.** and Bahuguna, A. 2001. *Application of remote sensing data to monitor mangroves and other coastal vegetation in India*. Indian Jour. Of Marine Sciences. 30(4): 195-213 (IF: 0.437, cited 80 times).
7. Solanki H.U., Dwivedi R.M., and **Nayak S**. Somvanshi, V.S., Gulati, D.K. Fishery forecast using OCM Chlorophyll concentration and ACHRR SST: Validation results off Gujarat Coast, Indina Inter. Jour. Remote Sensing 24 (18): 3691-3699. 2003. (IF:1.089, cited 51 times).
8. **Nayak, S.,** Sarangi, R. K. and Rajawat, A. S. 2001. *Application of IRS P4 OCM data to study impact of cyclone on coastal environment of Orissa*. Current Science, 80(9):1208-1213. 2001. (IF: 0.782, cited 59 times).
9. **Nayak, S.**, Chauhan, P., Chauhan, H.B., Bahuguna, A., Narendra Nath, A. 1996. *IRS-1C applications for coastal zone management*. 1996 Current Science, 70 (7), pp. 614-618. (IF : 0.782, cited 34 times).
10. **Nayak**, S. and Sahai, B. *Coastal morphology: a case study in the Gulf of Khambhat*. Inter. Jour. of Remote Sensing, 6 (3 & 4): 559-567. 1985. (IF:1.089, cited 52 times).

**8. Academic and Research Activities:**

1. **National- Extra- Curricular**

* Chair, National SCAR Committee, Indian National Science Academy, New Delhi (2016-2019).
* Chair, Project Appraisal and Monitoring Committee, Ocean Science and Resources. Ministry of Earth Sciences (2015-). November19-20, 2015.
* Chair, National Organising Committee, International Symposium on the Indian Ocean ' Dynamics of the Indian Ocean: Perspective and Retrospective' to Celebrate 50th Anniversary of Completion of International Indian Ocean Expedition (IIOE) and Golden Jubilee of CSIR-National Institute of Oceanography ( NIO), Goa. November 30- December 4, 2015.
* Member, Governing Council, The Energy Research Institute, Delhi. (2012-17)
* Chair, Research Advisory Committee, Centre for Earth Science Studies, Thiruvananthapuram (2007-14)
* Chair, Governing Body, Birbal Sahni Institute of Paleobotany, Lucknow (2010-2014)
* Chair, Governing Board, Gujarat Energy Research and Management Institute, Gandhinagar (2013 onwards)
* Chair, National Resources Data Management System, Department of Science & Technology (2009-2015)
* President, Federation of Indian Geoscientists Association, Hyderabad (2014-2017)
* President, Indian Geophysical Union (2014-2016, 2016-2018)
* President, Indian Society of Geomatics (2010-14)
* President, Indian Meteorological Society (2012-14)
* President, Indian Society of Remote Sensing (2008-2010, 2016-2018)
* President, Mangrove Society of India (2016 onwards)
* Adviser, Interview Board (Additional Director General, P & A, G. S. I.), UPSC, New Delhi. November 9, 2015.
* Chair, GeoSmart India Awards Committee, Geospatial, December 17, 2015.
* Chair, Bhatnagar Prize Award Committee for Earth Science, Sep. 4, 2015.
* Chair, Award Committee, Indian Society of Geomatics, Ahmedabad.
* Member, Editorial Advisory Board, GIS Development
* Member, Advisory Committee, Centre for Mathematical Modelling and Computer Simulation, Bangalore (2007 - 2008)
* Member of Editorial Board, Indian Journal of Marine Science, National Institute of Scientific Communications (2001-2004), Delhi and Geospatial Today, Hyderabad.
* Member, National Coastal Zone Authority, MOEF.
* Member, Scientific Research Advisory Board, Nansen Environmental Research Centre-India, Kochi (2007 onwards)
* Member, Scientific Advisory Committee, Institute of Seismological Research, Gandhi Nagar (2007 onwards)
* Member, Expert Committee of NRDMS Programme, DST, New Delhi (2007-2008)
* Member, Committee to update and develop Curricula in RS, GIS, GPS and allied subjects, DOS, Bangalore.
* Member, Research Advisory Committee, Wadia Institute of Himalayan Geology, Dehradun (2003-06)
* Member, Coastal Protection and Development Advisory Committee (CPDAC), Ministry of Water Resources, GoI. (1999-2008).
* Member, Programme Advisory Committee, Earth Sciences (PAC-ES) – Dept. of Science and Technology, GOI (2004-07, 1998-2001)
* Member, Gujarat Coastal Zone Authority, Gandhinagar.
* Member, Expert Group on SAR Interferometer, Department of Science & Technology, GoI (2002-2006)
* Member, Sub-Group I on Cyclone Early Warning System, NDMA
* Chair, Assessment Board, National Institute of Hydrology, Roorkee. Jan. 17, 2014.
1. **National-Curricular**
* Member, Science and Engineering Research Board, Ministry of Science and Technology, GoI (2010-2015).
* Member, CSIR Society (2010-2015)
* Member of Strategic Policy Group, Cabinet Secretariat, July 2011.
* Member, CoS on National GIS (2011-13)
* Member, Executive Committee on Climate Change, PMO (2013-2015)
* Member, Consultative Group on Climate Change, Ministry of Environment and Forest, GoI (2012-2015)
* Chair, Standing Committee on Meteorology and Ocean Resources, National Natural Resources Management System, Planning Commission, GOI (August 2008-2015)
* Chair, Research Council, National Institute of Oceanography. Goa (2008-2015)
* Member, DPRC, Ministry of Environment and Forest (Sci. F to G), Jan. 10, 2014.
* Member, DPRC, Department of Information Technology (Sci. E to F), April 4, 2013, July 4, 2013.
* Member, Peer Review Committee, DRDO, Sci. F to G, G to H, H to DS. July 5, 2013.
* Member, Departmental Peer Review Committee, Extension of Service beyond the Age of Superannuation, DRDO. July, 30, 2013.
* Member, GIS Advisory Board, National GIS Mission (2013-2014)
* Member, National Steering Committee on Climate Change, MoEF
* Member, Board of Governors, IISER, Pune; IISER, Kolkata
* Member, Apex Committee for DRDO Awards, 2012.
* Member, Advisory Board, State Awards in Science, M. P.
* Member, implementation of Modified FCS in Organizations under Ministry of Water Resources
* Member, Scientific Advisory Committee to the Prime Minister (2008-14)
* Member, Scientific Advisory Committee to the Cabinet (2008-15)
* Member, Search-cum-Selection Committee, CSIR
* Member, expert Committee, UNESCO Kalinga Prize for Popularizing of Science
* Member Award Making Committee, Ministry of Mines, GOI. January 21, 2014.
* Member, Programme Advisory Committee on Natural Resources Management and Climate Change, MSSRF, Chennai
* Member, National Bio-resource Board, Delhi.
* Visitor’s Nominee, Selection Committee doe Selection of Professors/Associate Professors/Asst. Professors, IIT-Bombay.
1. **International-Extra-Curricular**

* President, International Geological Congress-2020 (Dec. 2015 onwards)
* Member, Integrated Global Ocean Observing System (IGOS) – Coastal Theme. 2003-2006.
* President, International Society of Photogrammetry and Remote Sensing (ISPRS), Technical Commission IV on ‘Geo-databases and Digital Mapping’ (2004-2008).
* Secretary, International Society of Photogrammetry and Remote Sensing (ISPRS), Technical Commission VII on Resource and Environmental Monitoring and Chairman, ISPRS WG VII/3 on ‘Integrated Monitoring System for Resource Management’ (2000-2004).
* Co-ordinated various activities of ISPRS Technical Commission I on ‘Sensors, Platforms and Imagery.’ (1996-2000).
* Organized an International training program on “Remote Sensing of Ocean Colour: Techniques & Applications”, sponsored by IOCCG, POGO and ISRO during February 12-23, 2001 at SAC. Nine participants from abroad and eleven participants from India attended the training program.
* Faculty Member in a Training Course on “Ocean Colour”, Asian Institute of Technology, Organized by NASDA, Bangkok, Thailand, December, 2000.
* Faculty member in a training course on “Remote Sensing and GIS for Coastal Applications”, organized by SEAMEO BIOTROP at Bogor, Indonesia during October 20-29, 2001. Delivered lectures and conducted tutorials on Ocean Colour.
* A Pre-conference Training Module on Ocean Colour was organized during PORSEC 2000 during Nov. 30 - Dec.2, 2000 at Goa. An interactive CD-ROM was developed.
* Organized a Tutorial on ‘Integrated Coastal Zone Management’, Pre-symposium Tutorial, ISPRS TC VII Symp. December 2, 2002.
* Chaired Book Discussion Programme on Rao, U. R. India's Rise as a Space Power. New Delhi: Foundation Books, 2014. Bagla, Pallav & Subhadra Menon. Reaching for the Stars: India's Journey to Mars and Beyond. New Delhi: Bloomsbury, 2014. At India International Centre, New Delhi, April 8, 2015.
* Radio Talk on Exploring the Unexplored Antarctica. National Channel, All India Radio. June 17, 2015.
* Chairman, Indian Ocean – Global Ocean Observing System (IO-GOOS). (2006-2012)
* Member, International  Expert Committee, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China (2013 onwards)
* Chair, Indian Ocean Observing System Resource Forum (IRF) (2009-2013)
* Vice Chair, Intergovernmental Coordinating Group on Indian Ocean Tsunami Warning System (ICG-IOTWS), (2007-2011)
* Member, OGC Global advisory Council, USA
* Executive Committee Member, Partnership for Observation of Global Ocean (POGO), 2006-07
1. **International (Curricular)**
* Chair, Executive Board, Regional Integrated Multi-Hazard Early Warning System (RIMES) for Africa and Asia (2010-2015)
* Co-Chair, Core Committee for Hosting International Geological Congress in 2020 in India.
* Represented India at Intergovernmental Global Ocean Observing System (I-GOOS), 2006-2008
* Represented ISRO at the International Ocean Colour Co-ordinating Group (IOCCG). 2001-2004.
1. **Important Committees**
* Chair, Committee to Review the Issues related to Coastal Regulation Zone Notification, 2011. Ministry of Environment and Forests, GoI. Formed in June 17, 2014.  Submitted Report to the H'ble Minister, Ministry of Environment and Forests on January 19, 2015.
* Chair, Standardization of Methodology for Demarcation of HTL/LTL, Ministry of Environment and Forests, GoI.
* Chair, National GIS Interim Core Group, Planning Commission, GOI. Oct, 2011.
* Chair, Task Force on Procedures from Mapping Technology, GOI, 2010.

 **9. Invited Talks**

1. International: 38
2. National: 85
3. Academic Institutes: 51

Related to Earth system science research and societal benefits, Future Earth, Changing climate, Climate resilience, Impact of climate on coastal environment, Climate information and services, Stewardship of Oceans, Ocean observations and services, Ocean biology and coastal processes, Blue economy, Energy from oceans, Arctic and Antarctica, Himalayan glaciers, Polar science and climate, Geoscience and public policy, Scientific drilling, Monsoon Mission, Forecasting monsoon, Monsoon variability, Disaster and risk reduction, Ocean hazards, Tsunami warning system, Earthquake Risk, Bhuj earthquake, High impact weather, Landslides, Oil spills, Remote sensing Applications, Geographic Information System ((GIS), GIS policy, Data sharing, Ocean data and management, Ocean colour remote sensing, OCEANSAT, Remote sensing applications to fisheries, Remote sensing and coastal zone regulations,, Integrated coastal zone management, Coastal and marine biodiversity, Coastal Mapping, Coastal geomorphology, Space technology for water cycle, Water quality, etc.

**10. Recognised Ph. D. Guide**

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| **University** | **Subject** |
| Andhra University | Oceanography |
| Berhampur University, Berhampur | Marine Science |
| Gujarat University, Ahmedabad | Geology-Remote Sensing |
| Vikram University, Ujjain  | Geology |
| University of Pune, Pune | Geology |
| University of Rajasthan, Jaipur | Geology |
| Mangalore University, Mangalagangothri | Marine Geology & GeoinforMatics  |
| Nirma University, Ahmedabad | Geology, Earth Science |

**11. Number of Ph. D.s Completed**

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| --- | --- | --- | --- | --- |
| **Name**  | **Topic** | **Year of Award** | **University** |  |
| Sumisha Velloth | Habitat Classification of Coral Reefs of India using Multispectral and Hyperspectral Remote Sensing Data  | 2015 | Mangalore University, Mangalore |  |
| Janaki Janak Desai | Applications of Remote Sensing Techniques and GIS to Study Fluvio-Geomorphology and Evolution of Ganga River covering parts of Uttar Pradesh, India | 2014 | Gujarat University, Ahmedabad |  |
| Mini Raman | Estimating Primary Production in the Arabian Sea using Satellite Derived Data | 2014 | Mangalore University,  |  |
| Thomaskutty A.V. | Study of Sediment Dynamics along the Coastal Waters off Karnataka based on Remote Sensing and GIS Techniques | 2012 | Mangalore University |  |
| Navin Kumar Bollu | A Remote Sensing and GIS Mineral Prognostic Study in parts of SE Rajasthan | 2009 | Vikram University, Ujjain |  |
| Ramanuj Banerjee | Seismic Hazard Zonation Of Kachchh Area Using Remote Sensing | 2009 | Pune University |  |
| R. K. Sarangi | Impact of surface feature changes on phytoplankton variability in seas off southern part of the Indian peninsula: a remote sensing approach | 2008 | Berhampur University |  |
| A. S. Rajawat | Reconstruction, evolution and significance of paleo-drainage network in Western Rajasthan: an investigation based on multi-sensor satellite data and GIS. | 2006 | Vikram Univ, Ujjain |
| Devendra Kumar | Application of satellite-derived terrain parameters for the geomorphic and structural studies in the Jharia coal field, Jharkhand. | 2006 | Rajasthan University, Jaipur |
| Yashwant Pradhan | Circulation and dispersal pattern in the Bay of Bengal – a study based on satellite derived ocean colour applications | 2005 | Berhampur UniversityBerhampur |
| B. Deshmukh | Geomorphological study of coral reefs in a part of Gulf of Kachchh using remote sensing data | 2004 | Vikram Univ., Ujjain |

**12. Chair in International Conferences**

Moderator. Climate Change Adaptation in Coastal Areas & other Sectors. Side Event at the Twenty-first Session of the Conference of Parties, Paris. Society for Integrated Coastal Zone Management, Ministry of Environment, Forest and Climate Change. December 9, 2015.

Launch of IIOE -2 and Closing Session.  Symposium on the Indian Ocean ' Dynamics of the Indian Ocean: Perspective and Retrospective' to Celebrate 50th Anniversary of Completion of International Indian Ocean Expedition (IIOE) and Golden Jubilee of CSIR-National Institute of Oceanography ( NIO), Goa. December 4, 2015.

Historical climate trends and climate change projections. Workshop on Climate Change Projections, Vulnerability and Adaptation under the aegis of Third National Communication. Ministry of Environment and Forests and Climate Change. October 28, 2015.

Geopolitics of the Polar Region. International Conference on Geopolitics of Arctic-Antarctic-Himalaya, LIGHTS Research Foundation (Learning in Geography, Humanities and Science), New Delhi. September 29, 2015.

Make in India. Brain-Storming Meeting on Radar Meteorology. IISc and ESSO-IMD, Bangalore. September 26, 2015.

Panel Discussion and Closing Session. WMO 3rd International Monsoon Heavy Rainfall Workshop. ESSO-IMD. New Delhi. September 24, 2015.

President, Federation of Geoscience Associations, Hyderabad (2014-17).

President, Indian Union of Geophysics, Hyderabad (2014-17).

Plenary Session on Future Earth. ISPRS Technical Commission Mid Term Symposium on 'Operational Remote Sensing Applications: Opportunities, Progress and Challenges. ISRS and ISG, Hyderabad. December 9, 2014.

Oceans and Monsoons, International Conference on ‘Celebrating the Monsoon’ IISC, July 26, 2007, Bangalore.

POGO Business, 8th POGO Meeting, Qingtao, China, January 19, 2007.

“Implementation Strategy for Coastal Module of GOOS.” 3rd Regional GOOS Forum, Cape Town, South Africa, November 14-17, 2006.

Remote Sensing, 4th Annual Meeting of IO-GOOS, Zanzibar, October 10-12, 2006.

Early Warning System for various marine hazards – Present Status” at the International Conference on Marine hazards and opportunities”, July 3, FICCI, Chennai.

Silver Jubilee Symposium on Antarctica Expedition, May 25-26, 2006.