

Moderna gestione delle acque sotterranee in acquiferi salinizzati ed inquinati

Conferenza di aggiornamento e formazione sui temi della moderna idrogeologia e gestione delle risorse idriche sotterranee

Il Dipartimento di Ingegneria Civile, Ambientale, del Territorio Edile e di Chimica (DICATECh) del Politecnico di Bari, in collaborazione con la sede di Bari dell'Istituto di Ricerca per la Protezione Idrogeologica (IRPI) del CNR, ha organizzato per il giorno 23 giugno 2025 una Conferenza sul tema della *Moderna gestione delle acque sotterranee in acquiferi salinizzati ed inquinati*. La conferenza si articolerà in una lezione magistrale del Prof. Brijesh Kumar Yadav, dell'Indian Institute of Technology, sulla *Moderna gestione delle acque sotterranee in acquiferi salinizzati ed inquinati*, cui seguirà una tavola rotonda sugli stessi temi con interventi di professori del Dipartimento e ricercatori del CNR IRPI che svolgono attività di ricerca e consulenza scientifica sulle tematiche di Idrogeologia e di Idrologia delle acque sotterranee.

La conferenza si svolgerà presso l'Aula Consigliare del Dipartimento DICATECh del Politecnico di Bari in via Orabona, 4 in Bari.

Programma

- 10.00-10.30 Registrazione dei partecipanti
- 10,30-11,00 Saluti istituzionali
Prof. Leonardo Damiani – Direttore Dicatech
Prof. Umberto Fratino – Rettore Eletto del Politecnico di Bari
- 11.00 -12.00 Lectio Magistralis del Prof. Yadav Former Head, Department of Hydrology, Indian Institute of Technology (IIT) Roorkee, *Advancing Groundwater Management in Salt- and Pollutant-Affected Coastal and Terrestrial Regions*
- 12,00-13,00 Tavola rotonda di approfondimenti sulle tematiche di Idrogeologia con i docenti del DICATECh Gabriella Balacco, Angelo Doglioni, Vito Iacobellis, Nicola Pastore, Vincenzo Simeone e i ricercatori del CNR-IRPI Maurizio Polemio e Livia Emanuela Zuffianò.

E' stato richiesto il riconoscimento di n. 2 CFP per gli Ingegneri e i Geologi iscritti nei rispettivi albi professionali che parteciperanno all'intera conferenza.

Presentazione della Lectio Magistralis del Prof. Brijesh Kumar Yadav

Advancing Groundwater Management in Salt- and Pollutant-Affected Coastal and Terrestrial Regions

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Groundwater is an essential resource supporting human life, agriculture, and ecosystems across both inland and coastal regions. However, it is increasingly threatened by over extraction, industrial discharge, agricultural runoff, and seawater intrusion, all contributing to its degradation. Globally, around 24 million km² (16% of land area) are affected by high groundwater salinity, with West and Central Asia being among the most impacted regions. Additionally, contamination from volatile organic compounds, heavy metals, pathogens, nitrates, pesticides, and emerging pollutants further complicates its management. To ensure the sustainability and quality of groundwater, contaminant and site-specific management strategies are essential. This talk discusses about the site-specific Managed Aquifer Recharge (MAR), characterization of Submarine Groundwater Discharge (SGD) in coastal regions, and in-situ remediation techniques for polluted aquifers. In coastal areas, MAR through fresh water supply from potential SGD zones help mitigate seawater intrusion and increased fresh-water availability by customizing groundwater hydraulics. In terrestrial zones, in-situ remediation and effective monitoring strategies are needed for polluted regions. Permeable Reactive Barriers (PRBs), installed with well screens, can remove geogenic contaminants like arsenic and Fluoride under field conditions. Innovative groundwater monitoring through functional relationships between easily measurable indicators and complex pollutants, further supports effective management of groundwater. Together, these strategies can help us in addressing groundwater challenges in both coastal and inland environments under increasing anthropogenic pressure.



Prof. Brijesh Kumar Yadav

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Prof. Brijesh K. Yadav is a faculty member in the Department of Hydrology at IIT Roorkee and a Joint Professor at the International Center of Excellence in Dams (ICED). He holds an M.Tech. in Water Resources from IIT Delhi and a Ph.D. jointly from IIT Delhi and UNESCO-IHE Delft (2008). A recipient of the prestigious Ramanujan Fellowship award from the Government of India, he has completed postdoctoral research at UC Davis (USA) and Utrecht University (Netherlands). Prof. Yadav serves as Secretary General of the Association of Global Groundwater Scientists (AGGS) and has received its Distinguished Fellow Award in 2025. His research focuses on groundwater management, remediation of polluted sites, managed aquifer recharge, and seawater intrusion. He has published around 100 peer-reviewed papers and delivered more than 70 presentations at national and international forums. He has played a convener/chair role in organizing major scientific events on groundwater, including the 8th and 9th International Groundwater Conferences (IGWC), the 2022 Natural Hazards Symposium, and the Roorkee Water Conclave (2020). A consistently top-ranked teacher, Prof. Yadav has been among the Top Ten Outstanding Teachers at IIT Roorkee for the past five years. He served as Head of the Department of Hydrology from June 2021 to May 2024.