



Luisa Stellato

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A. Personal Statement

I am an environmental scientist with a Ph.D. in Hydrogeology and over 20 years of experience in research and education. My work focuses on the application of isotopic, hydrochemical, and hydrogeological techniques to study groundwater-surface water interactions, nitrate contamination, and environmental monitoring near landfill and nuclear sites. I have collaborated with national and international institutions, including the International Atomic Energy Agency (IAEA), and have led and contributed to several research projects. I am also committed to science outreach and education, serving as a permanent teacher of Mathematics and Science and coordinating public engagement events such as the European Researchers' Night.

Since 2021, I have been actively involved as a volunteer with the Marine Animal Conservation and Public Engagement Department of the Stazione Zoologica Anton Dohrn (SZN), contributing to projects focused on the conservation of the loggerhead sea turtle (*Caretta caretta*). My main responsibilities have included monitoring and identifying sea turtle tracks, assisting SZN researchers in securing nesting sites, supporting hatchling monitoring activities, and participating in public awareness campaigns aimed at promoting sea turtle protection.

In 2023, I was invited to join the Advisory Board of the **LIFE Turtlenest** project, where I contribute my expertise in environmental sciences and public engagement to support the strategic development and dissemination of conservation actions.

I am the author and co-author of more than 30 peer-reviewed publications in both national and international indexed journals, as well as 4 book chapters. My contributions include work published in the IAEA Technical Document Series (IAEA-TEC-DOC), reflecting my active involvement in international scientific collaborations. Over the years, I have also served as a reviewer for several international journals, supporting the peer-review process and contributing to the advancement of research in the fields of environmental isotopes and hydrogeology.

A complete list of my publications is available on my Google Scholar profile (https://scholar.google.com/citations?hl=it&user=cBytrpcAAAAJ&view_op=list_works&sortby=pubdate)

B. Positions and Honors

- **2021–Present:** Permanent Teacher of Mathematics and Science, Ministry of Education and Merit, San Giovanni Bosco School, Naples, Italy
- **2005–Present:** Research Collaborator, CIRCE (Isotopic Research Centre on Cultural and Environmental Heritage), Department of Mathematics and Physics, University of Campania “Luigi Vanvitelli”
- **2016–Present:** Scientific and Organizational Coordinator, European Researchers' Night, Department of Mathematics and Physics, University of Campania
- **2016–2019:** Subject Expert in “Applied Geology” (SSD GEO/05), Department of Earth, Environment and Resources Sciences, University of Naples Federico II

- **2016–2019:** Chief Scientific Investigator, IAEA CRP F33022 on groundwater systems near nuclear power plants (Italy representative)
- **2012–2015:** Principal Investigator, IAEA Coordinated Research Project on nitrate pollution in groundwater (Italy representative)
- **2012–2017:** Co-organizer, EGU General Assembly session on groundwater-surface water interactions (Hydrological Sciences Programme)
- **2005–2010:** Research Collaborator, Groundwater Research Centre, University of Molise

C. Education

- **Ph.D. in Environmental Sciences (Hydrogeology)**
Second University of Naples, Department of Environmental Sciences
Thesis: *Study of stream water-groundwater interactions by means of environmental tracers*
Supervisors: Prof. Fulvio Celico, Prof. Filippo Terrasi
Date: March 15, 2005
- **M.Sc. in Environmental Sciences (cum laude)**
Second University of Naples
Thesis: *Experimental study of radionuclide transfer from irrigation water to a soil-plant system*
Date: March 30, 2000

D. Contributions to Science

1. **Groundwater-Surface Water Interactions**
Investigated hydrological mechanisms in porous aquifers using isotopic tracers (δD , $\delta^{18}O$, ^{222}Rn), hydrochemical and hydrogeological methods to understand water flow dynamics and recharge processes.
2. **Isotopic Analysis Protocols**
Developed and applied offline and online protocols for isotopic ratio determination of oxygen and hydrogen in water (IRMS, TC/EA-CF-IRMS), of nitrogen and oxygen in dissolved nitrates, of boron to trace pollution sources in groundwater.
3. **Landfill Leachate Contamination Studies**
Conducted site-specific studies on municipal solid waste landfills to identify leachate contamination in groundwater and surface water using isotopic (δD , $\delta^{18}O$, $\delta^{13}C$ -DIC), hydrochemical, and hydrogeological techniques.
4. **International Research Collaboration**
Led and participated in IAEA research projects on nitrate pollution and groundwater systems near nuclear power plants, contributing to global efforts in environmental monitoring and isotopic hydrology.
5. **Science Communication and Education**
Active in university-level teaching, thesis supervision, and peer-reviewing. Coordinated public science events and contributed to educational outreach through the European Researchers' Night.

E. Research Support

- **IAEA CRP (2012–2015)**
Assessment of the Mechanisms Affecting Nitrate Load in the Riparian and Hyporheic Zones Impacted by Nutrient-Bearing Groundwater
Role: Principal Investigator (Italy representative)
- **IAEA CRP F33022 (2016–2019)**
Use of Isotope Hydrology to Characterize Groundwater Systems in the Vicinity of Nuclear Power Plants
Role: Chief Scientific Investigator (Italy representative)

F. Selected publications

1. A Corniello, D Ducci, **L Stellato**, S Stevenazzi, L Massaro, E Del Gaudio, 2024. Combining groundwater budget, hydrochemistry and environmental isotopes to identify the groundwater flow in carbonate aquifers located in Campania Region (Southern Italy). *Journal of Hydrology: Regional Studies* 53, 101790, 2024
2. Paolo Nasta, Diego Todini-Zicavo, Giulia Zuecco, Chiara Marchina, Daniele Penna, Jeffrey J. McDonnell, Anam Amin, Carolina Allocca, Fabio Marzaioli, **Luisa Stellato**, Marco Borga & Nunzio Romano (2023). Quantifying irrigation uptake in olive trees: a proof-of-concept approach combining isotope tracing and Hydrus-1D, *Hydrological Sciences Journal*, DOI: 10.1080/02626667.2023.2218552
3. Petraglia, A.; Sirignano, C.; Marzaioli, F.; Sabbarese, C.; D'Onofrio, A.; Porzio, G.; Buompane, R.; Roca, V.; **Stellato, L.**; Esposito, A.M.; Mazziotta, P.; Terrasi, F. (2022). Ultrasensitive Radionuclide Analysis in Water and Sediments for Environmental Radiological Assessment near the Decommissioning Garigliano Nuclear Power Plant (Italy). *Appl. Sci.* 2022, 12, 8033. <https://doi.org/10.3390/app12168033>.
4. Marzaioli, F., Di Rienzo, B., **Stellato, L.**, Di Fusco, E., Rubino, M., D'Onofrio, A., Terrasi, F. (2021). Characterization of analytical performances of $\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ measurements by the silver nitrate method in the framework of nitrate source apportioning at CIRCE centre (Italy). *Rapid Communications in Mass Spectrometry*, 2021; 35: e9009; <https://doi.org/10.1002/rcm.9009>.
5. Corniello, A., Guida, M., **Stellato, L.**, Trifuoggi, M., Carraturo, F., Del Gaudio, E., Del Giudice, C., Forte, G., Giarra, A., Iorio, M., Marzaioli, F., Toscanesi, M. (2020). Hydrochemical, isotopic and microbiota characterization of Telese Mineral Waters (Southern Italy). *Environmental Geochemistry and Health* 44 (7), 1949-1970.
6. **Stellato, L.**, Coda, S., Arienzo, M., De Vita, P., Di Rienzo, B., D'Onofrio, A., Ferrara, L., Marzaioli, F., Trifuoggi, M., Allocca, V., (2020). Natural and anthropogenic groundwater contamination in a coastal volcanic-sedimentary aquifer: the case of the archaeological site of Cumae (Phlegraean Fields, southern Italy). *Water* 2020, 12(12), 3463; <https://doi.org/10.3390/w12123463>.
7. Ambrosino, F., **Stellato, L.**, Sabbarese, C., 2020. A case study on possible radiological contamination in the Lo Uttaro landfill site (Caserta, Italy). *Journal of Physics: Conference Series* 1548, 012001.
8. Romano N., Nasta P., Bogena H., De Vita P., **Stellato L.**, Vereecken H., 2018. Monitoring Hydrological Processes for Land and Water Resources Management in a Mediterranean Ecosystem: The Alento River Catchment Observatory. *Vadose Zone Journal* 17 (1), 1-12.
9. Allocca V., Coda S., De Vita P., Di Rienzo B., Ferrara L., Giarra A., Mangoni O., **Stellato L.**, Trifuoggi M., Arienzo M., 2018. Hydrogeological and hydrogeochemical study of a volcanic-sedimentary coastal aquifer in the archaeological site of Cumae (Phlegraean Fields, southern Italy). *Journal of Geochemical Exploration* 185, 105-115.