

**Sustainable Water Management
Doctoral Programme (Water4All)**



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Title of the PhD Project	Contribution of Environmental Isotopes to the Understanding of Complex Hydrologic Systems
Acronym	COENIS
Research Fields of the Project	Water Resources
Keywords	Groundwater, hydrogeology, hydrology, isotope
Host Institution, Department and Campus Location	Izmir Institute of Technology, Department of International Water Resources Gülbahçe, Izmir, Türkiye
PhD Awarding Institution and Graduate Programme	Izmir Institute of Technology, Department of International Water Resources
Name and Affiliation of Main Supervisor	Prof. Dr. Alper BABA Izmir Institute of Technology,
Name and Affiliation of Co-Supervisors	Prof. Dr. Koray K.YILMAZ, Middle East Technical University
Research Environment and Infrastructure	The selected candidate will have access to the research infrastructure available at Izmir Institute of Technology and Middle Technical University. When a specific instrument or expertise is needed, all other national laboratories will also be contacted.
Scientific Context of the Project	Isotope studies are used in a variety of hydrologic problems related to surface and groundwater resources and in environmental studies in hydrology. The isotopic composition at the evaporation front differs from that of atmospheric moisture and that of groundwater and depends on the temperature of the atmosphere, the equilibrium fractionation between liquid and vapour, the moisture deficit of the atmosphere, the isotopic composition of the atmospheric vapour, and so on. In addition, the numerous applications of stable isotope hydrology extend to the entire hydrosphere. One of the main areas of application is the origin and mixing of groundwater and its dissolved natural and anthropogenic components. The most comprehensive information is obtained from stable isotope abundances. This project will evaluate the contribution of environmental isotopes to the understanding of

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	complex hydrological systems in different Mediterranean basins for the management of groundwater resources.
Brief Workplan	Evaluate importance of isotopes Importance of isotopes for groundwater resources age Importance of isotopes for water-rock interaction Apply different isotope for groundwater resources
Innovative Aspects of the Project	Some isotope methods have provided reliable results in identifying and quantifying the origin of groundwater and surface water resources and their impact from anthropogenic pollution. It is also important to evaluate and model of the stable water isotope method to quantify groundwater resources infiltration under Mediterranean climate conditions.
Training Opportunities of the Project	Numerous field studies related to the project Visiting organizations working on this issue and examining what they do innovatively
Interdisciplinary Aspects	This project will be carried out with a fully interdisciplinary approach. The project will involve many contacts between climate scientists, civil engineers, hydrogeologists, geologists and environmental engineers.
Intersectoral Mobility <input checked="" type="checkbox"/> Short Visit <input type="checkbox"/> Secondment	State Hydraulic Works
Intersectoral Mobility <input checked="" type="checkbox"/> Short Visit <input type="checkbox"/> Secondment	Izmir Water and Sewerage Administration
International Academic Secondment	Villanova University



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Main Supervisor							
Brief CV	<p>Prof. Dr. Alper BABA</p> <p>E-mail: alperbaba@iyte.edu.tr</p> <p>Academic Degrees</p> <table><tbody><tr><td>Ph.D. Hydrogeology, Dokuz Eylül University, Türkiye</td><td>2000</td></tr><tr><td>M.Sc. Geological Engineering, Dokuz Eylül University, Türkiye</td><td>1995</td></tr><tr><td>B.Sc. Geological Engineering, Dokuz Eylül University, Türkiye</td><td>1992</td></tr></tbody></table> <p>Professional Networks</p> <p>Google Scholar: https://scholar.google.com.tr/citations?user=QVgCMkEAAAAJ&hl=en</p> <p>ResearchGate: https://www.researchgate.net/profile/Alper-Baba</p> <p>Scopus: https://www.scopus.com/authid/detail.uri?authorId=7201982375</p> <p>ORCID: https://orcid.org/0000-0001-5307-3156</p>	Ph.D. Hydrogeology, Dokuz Eylül University, Türkiye	2000	M.Sc. Geological Engineering, Dokuz Eylül University, Türkiye	1995	B.Sc. Geological Engineering, Dokuz Eylül University, Türkiye	1992
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B.Sc. Geological Engineering, Dokuz Eylül University, Türkiye	1992						
Co-supervisor:							
Brief CV	<p>Assoc. Prof. Dr. Koray K. YILMAZ</p> <p>E-mail: yilmazk@metu.edu.tr</p> <p>Academic Degrees</p> <table><tbody><tr><td>Ph.D. Hydrology and Water Resources, Univ. of Arizona, USA</td><td>2007</td></tr><tr><td>M.Sc. Geological Engineering, Middle East Technical University, Türkiye</td><td>1999</td></tr><tr><td>B.Sc. Geological Engineering, Middle East Technical University, Türkiye</td><td>1996</td></tr></tbody></table> <p>Professional Networks</p> <p>Google Scholar: https://scholar.google.com.tr/citations?user=olbhvrYAAAAJ&hl=tr&oi=ao</p>	Ph.D. Hydrology and Water Resources, Univ. of Arizona, USA	2007	M.Sc. Geological Engineering, Middle East Technical University, Türkiye	1999	B.Sc. Geological Engineering, Middle East Technical University, Türkiye	1996
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