

TECO Mobility grant

Lattice Boltzmann Modelling of the salt wedge in coastal areas

Beneficiary of the grant- Michele La Rocca

Home Institution/Company (EU)- Università degli Studi Roma Tre – Dipartimento di Ingegneria

Host Institution/Company (INDIA)- Anna University – Department of Geology

Period of the stay in India- June 20th - june 30th 2016



TECO Project

**Technological Eco-Innovations for the Quality Control
and the Decontamination of Polluted Waters and Soils**

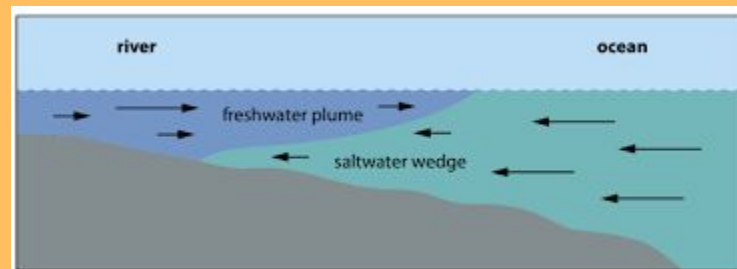
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Objective of the project

- *The objective of the project was to formulate Lattice Boltzmann models of the salt wedge in coastal areas.*
- *The salt wedge is a flow of salty water which enters the main channel of an estuary and flows in the opposite direction of the fresh water.*
- *The salt wedge may affect seriously the quality of water and as a consequence the supply of water for civil purposes.*



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Activities carried out during the period of the grant

- *An introduction to Lattice Boltzmann Method (LBM) for environmental Hydraulics.*
Lecture given on June 23rd 2016
- Meetings with Prof. Elango Lakshmanan and the staff of the Geology Department, to plan the research activity on water quality and problems of water contamination.
- Visit to the experimental site of the Anna University – Department of Geology. In this site it is tested the influence and the efficacy of an artificial freshwater pond to improve the water quality

Fresh water pond



Measurement points (piezometric wells).



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Main outcomes

- **Formulation of Lattice Boltzmann based models for the formation and propagation of salt water in estuarine zones.**
- **Starting of scientific collaboration on themes of common interest: saline intrusion in coastal groundwater, formulation of Lattice Boltzmann based models for contamination of waters.**
- **Expected outcomes are mainly scientific publications on international journals.**



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