



Vacancy PhD position research of Eutrophic lakes using optical remote sensing techniques

At Water Insight, Institute for Environmental Studies (Netherlands) and Tartu Observatory (Estonia)

Water Insight (WI) is a private commercial company (SME) spin-off (2005) from the Institute of Environmental Studies IVM at the Free University of Amsterdam. The company currently employs 6 people. WI has a strong track record in remote sensing consultancy, software development, training and education. WI has participated in many national and international project partnerships for technological innovation, demonstration and implementation.

WI produces innovative surface water quality monitoring solutions based on observations with optical sensors deployed from boats, airplanes and satellites.

The Institute for Environmental Studies (IVM), the oldest environmental research institute in the Netherlands, aims to contribute to the sustainability of societies and environmental rehabilitation and preservation through academic and applied research. It takes a multidisciplinary approach, and has key research expertise in water and climate related issues. A research community of 100 scientists addresses challenging environmental problems and offers pragmatic and innovative solutions. IVM is coordinator of the FP7 GMES downstream project CoBiOS. (www.vu.nl/ivm)

Tartu Observatory is the Estonian leading institute for space research and technology. It has three departments: stellar physics, cosmology and Atmospheric physics. The latest one is mainly dedicated to Earth Observation now. Currently running international projects like WaterS (FP7 IAPP), ESAIL (FP7 Space), EstSpace (FP7 Capacities and ESA PECS ORAQUA, NordAquaRemS (NordForsk). (www.aai.ee)

Vacancy

We invite applications for an PhD position focussing on the research of Eutrophic lakes using optical remote sensing techniques. Satellite images of lakes reveal patterns that are related to the water composition. These images can be translated into spatial quantitative estimates of

- 1) Optical properties (IOPs) such as absorption and scattering, and attenuation
- 2) Concentrations of Chlorophyll-a (as proxy for phytoplankton biomass), total suspended matter, colored dissolved organic matter, and Phycocyanin (as proxy for the amount of cyanobacteria).

Maps of these parameters show distinct spatial variability. Our hypothesis is that the information on spatial variability in IOPs and pigment concentration images provides insight in the composition of the phytoplankton population (other dominant species; growth and decay, etc.). We will characterize the spatial variability using techniques such as spatial statistics, gradient analysis etc. An important aspect of the study will be to verify and interpret the spatial information in the images by making optical and biological field measurements along transects. Attention will be given to the elimination of unwanted spatial patterns in the images induced by clouds, cloud shadows and atmospheric variability.

The PhD researcher will be based in Wageningen (the Netherland) at Water Insight during the first year. The work will be performed in close contact with researchers from the Institute of Environmental Studies of the Vrije Universiteit Amsterdam (Dr. M. Eleveld, Prof. P. Verburg and Prof. J. Vermaat). During the first year the lake IJssel will be studied. In the next 2 years, a large portion of time will be spent in Tartu Observatory (Estonia) to analyze Lake Peipsi data in cooperation with Dr. A. Reinard. The final year will be spent in the Netherlands at Water Insight and IVM. The researcher



will participate in a growing international network with researchers from amongst others Estonia, Sweden, Finland and Germany.

Qualifications

For this position we are looking for a highly motivated young researcher who is self supporting and a team player. The candidate should have a background in (aquatic) ecological sciences, physics or chemistry (completed MSc.). Experience in water optics would be an advantage. Some experience in programming languages such as Matlab or R would also be advantageous. The candidate must have the flexibility to work and live alternatively in the Netherlands and in Estonia, and should have a fair working knowledge of the English Language.

Salary

The PhD. researcher receives a full-time fixed term employment contract for 2.5 years at Water Insight at corresponding university AIO salary scales and a full-time fixed term contract at Tartu Observatory for 1.5 years in total with a salary according to the EU IAPP programme.

Closing date of the vacancy is 10 June 2011. The PhD position will start as soon as possible. Electronic applications consisting of a CV, list of publications, and letter of interest in pdf format can be sent to info@waterinsight.nl. After initial selection a limited number of candidates will be invited for interviews (either face-to-face or by videoconferencing). Further information can be requested from Dr. Steef Peters using the aforementioned email address.