Vacancies for Internship Positions

www.labmath-indonesia.org

LabMath-Indonesia (LMI) is an independent research institute with offices in the Art & Science estate Lawangwangi in Bandung. We work together with various universities and institutions in Indonesia and abroad. This is visible our activities such as the organization of Research Work Shops.
In 2010 we organise a Short Course on *Geo-Governace*, followed by a Training and Research WorkShop *Satellite based Water Balance Computation and Modelling* from 28 June – 4 July. In the coming year we plan to have Research Work Shops on coastal wave modelling, simulation and management.
The topics of these activities are in line with our focus on problems from nature and environment that are of direct relevance for Indonesia: effects of Climate Change on the coastal area (high waves, endangering the coast and ships and offshore structures) and on the (rain) water availability for agriculture and human consumption.
Most of our research is done in close collaboration with young students. This is stimulating for the supervisors, but also intended to give the students a good example of the possibilities of mathematical modelling. For students this gives a good preparation for continued studies (in Indonesia or abroad) or a successive job. Although we advocate math modelling, our research is very multi disciplinary, and good non-math students can profit just as much. Quite regularly international students perform a trainee ship or project work at LMI, creating a stimulating international atmosphere.
We describe below topics of present research for which we ask participation of new good students.

Drying and wetting of Indonesian Peatland

Approximately 50% of the world's tropical peat lands are situated in Indonesia (Kalimantan, Sumatra and Papua); these lands, originally rain forests, have a unique and large bio-diversity and act as substantial carbon storage. However, these lands cause environmental problems at a large scale caused by drainage of these lands to transform them into agricultural lands and oil palm plantations. The drying of the lands leads to oxidation and fires, with huge carbon emission as a consequence.
At LMI we model the drying process with the aim to find strategies to try to rewet the areas by optimal construction of small dams.
The research is done in collaboration with IPBogor, the province of Aceh (as part of a bio-mass project) and Dutch Universities of Wageningen and Twente.

Coastal wave Modelling and Simulation

Climate Change causes stronger winds and more cyclones, which results in higher waves before the coast and more ship accidents; newspapers report about these incidents frequently. Offshore activities, in Indonesia and the whole world, are influenced too, and require more accurate simulation tools for wave predictions and force calculations.
We design completely new software, based on very good models that make the codes accurate and efficient. We investigate both time-accurate and so-called spectral methods, with applications in offshore engineering, coastal management and harbour design. *This year we aim to develop real-time geo-observation of coastal waves through the FengYun satellite.*
The research is done in collaboration with ITB, MARIN, Alkyon and Dutch Universities of Delft and Twente, and in contact with Deltares and DHI Singapore.

Public awareness for 'science for environment'

The activities and the presentation of results of our research in conferences and scientific journals, are naturally targeted to a rather specialized and knowledgeable audience. Contributions in this scientific circle do not easily reach a group for which our results are also interesting and useful. We enjoy good relations with various ministries, but would like also to contribute to communicate our research interests and results to a broader audience, including readers of quality news papers and periodicals.

Requested qualifications

For the topics describe above, we look for good students who are eager to become involved in any of these topics and to learn many new topics and ideas.
For the peatland and wave modelling, they should have good knowledge of calculus/ analysis including ordinary and partial differential equations, and be experienced in programming, for instance in Matlab. Students or graduates with good grades in S1 or S2 from mathematics, physics, oceanography, geosciences, engineering etc can profit very much from this research experience. A sound scientific attitude (critical, inventive and independent) should be accompanied by a strong motivation and disciplined work attitude.
For the communication topic, students or graduates with good grades in S1 or S2 from Communication Studies or Scientific Journalism could qualify; candidates with a scientific background should have *proven* evidence of their interest and capability for this journalistic type of work which requires a strong motivation and disciplined work attitude.

Internship Position: Offer

The internships are executed at LabMath-Indonesia, Lawangwangi Art & Science Estate in Bandung. Including a one-month probation period, the position is for a period of 3 months or longer, depending on performance and students plans. During the execution you will get valuable experience in scientific research or journalism and will work in a stimulating environment.
The monthly allowance will depend on qualifications and performance; reasonable travel expenses will be reimbursed.

Application procedure

Candidates should send an up-to-date CV, a copy of last degree and academic record (and proof of previous work of scientific journalism) with a letter of motivation
before 1 June 2010 by email to:
Dr. Andonowati andonowati@LabMath-Indonesia.org and Prof. Brenny van Groesen groesen@LabMath-Indonesia.org.
It is the intention to have interviews in the first week of June, with the possibility to start immediately after selection.