PhD or Post-doc in SAR Altimetry

Engels -- Faculty/department Aerospace Engineering
Level Master degree or PhD
Maximum employment Maximum of 38 hours per week (1 FTE)
Duration of contract 4 years
Salary scale €2083 to €2664 per month gross

Aerospace Engineering

The faculty of Aerospace Engineering at Delft University of Technology is one of the world's largest faculties devoted entirely to aerospace engineering. In the Netherlands it is the only research and education institute directly related to the aerospace engineering sector. It covers the whole spectrum of aerospace engineering subjects. In aeronautics, the faculty covers subjects ranging from aerodynamics and flight propulsion to structures and materials and from control and simulation to air transport and operations. In astronautics, topics include astrodynamics, space missions and space systems engineering. The faculty has around 2,500 BSc and MSc students, 214 PhD candidates and 27 professors supported by scientific staff.
The faculty's mission is to be the best Aerospace Engineering faculty in the world, inspiring and educating students through modern education techniques and enabling staff to perform ambitious research of the highest quality for the future of aerospace. The working atmosphere at the faculty is friendly, open-minded and dedicated.

The Astrodynamics and Space Missions (A&S) section is dedicated to the modelling and analysis of satellite orbits, planetary missions and their many planetary applications. For more information, please visit www.as.lr.tudelft.nl.

Job description

CryoSat-2 was launched in 2010 to map the cryosphere with an advanced microwave altimeter. Though the mission goal is to observe changes in the cryosphere, the instrument also functions perfectly when over the oceans and presents a new way of looking at sea surface topography and sea surface roughness. This opens possibilities for studying meso- and submesoscale ocean dynamics, particularly suited for exploring coastal processes. The PhD candidate will explore and exploit the high-resolution CryoSat-2 SAR mode data to its fullest for ocean applications. This requires a thorough theoretical study into delayed Doppler altimetry (as opposed to conventional, pulse-limited altimetry) and into waveform re-tracking. We would also like to identify the new capabilities, including higher resolution sea surface topography, coastal sea surface topography, sea surface wave amplitudes, scales and directions. As future missions like ESA’s Sentinel-3 and Eumetsat’s Jason-CS will also carry SAR-enabled altimeters, it is of utmost importance to be well prepared and to build that research capability in the Netherlands. The most obvious place is the Astrodynamics Chair at TU Delft, because staff members there have been involved in altimetry for many years, dealing with calibration/validation, ocean science and ocean value added products, and are the founding fathers of the renowned Radar Altimeter Database System (RADS).

Requirements

Applicants are expected to have a university degree (MSc) in physics, astrophysics, applied mathematics, earth and planetary sciences, or a related area, and a background in numerical modelling. Experience with altimetry processing is considered an asset. Applicants with a PhD and interested in this research are also invited to apply; they will be considered for a 3-yr post-doc position. Applicants must also be proficient in spoken and written English.

Conditions of employment

TU Delft offers an attractive benefits package, including a flexible work week, free high-speed Internet access from home (with a contract of two years or longer), and the option of assembling a customised compensation and benefits package (the 'IKA'). Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities.
As a PhD candidate you will be enrolled in the TU Delft Graduate School. TU Delft Graduate School provides an inspiring research environment; an excellent team of supervisors, academic staff and a mentor; and a Doctoral Education Programme aimed at developing your transferable, discipline-related and research skills. Please visit www.phd.tudelft.nl for more information.

Information and application

For more information about this position, please contact M.C. Naeije, phone: +31 (0)15-2783831, e-mail: m.c.naeije@tudelft.nl. To apply, please send your CV, a statement of purpose, a list of courses in the BSc and MSc programme including marks, a list of published papers or reports, and the names and addresses of two references. To apply for the post-doc position, we ask instead of a list of BSc/MSc courses for your (draft) PhD thesis. Please e-mail your application by 11 April 2014 to Mrs. N. van Wingaarden, n.vanwingaarden@tudelft.nl. When applying for this position, please refer to vacancy number LR14-04.