

PhD SAR altimetry and sea state vacancy number LR20.09 ↵

Faculty/department Aerospace Engineering/ Space Engineering
Level Master degree
Maximum employment Maximum of 38 hours per week (1 FTE)
Duration of contract 4 years
Salary scale €2325 to €2972 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, 200 PhD candidates and 25 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 Department of Space Engineering provides premier European education and research in space engineering. The Department consists of two research groups: Astrodynamics and Space Missions, and Space Systems Engineering. It runs an integrated research programme comprising miniaturisation, distributed space systems, mission analysis and orbits, space propulsion, ascent and re-entry, and planetary exploration. The Department operates a cleanroom facility for the design, integration, and verification of satellite assemblies up to entire satellites.

The Astrodynamics and Space missions Chair (AS) of the Faculty of Aerospace Engineering is specialized in the use of space techniques to advance satellite orbit dynamics and geodesy as scientific disciplines, and to contribute to advanced satellite orbit computations, gravity field determination, modern tracking concepts, and geodesy to global change studies, geodynamics, oceanography, and geophysics. Precise orbit determination and in conjunction conservative and non-conservative force modelling belong to the key research areas of AS. In addition, AS has been involved for a long time in altimeter calibration and validation activities and the construction of the renowned Radar Altimeter Database System RADS, which enjoys a large science user-community. For more information, please visit www.lr.tudelft.nl/as.

Job description

At the Chair Astrodynamics and Space missions (AS), a PhD position (4 year term) is vacant on the topic of satellite SAR altimetry. Altimetry is the measurement technique par excellence for monitoring ocean and ice levels from space on global and local scale, and indispensable for climate research. SAR altimetry is a new

altimeter technique that started with the CryoSat-2 mission and increases the resolution considerably. With this new technique however came a problem extracting wave heights properly, degrading the sea level retrieval and sea state estimation. It is suggested that this has to do with the presence of swell (long-wavelength surface gravity waves).

The PhD candidate has to quantify this swell dependency for wave magnitude, period and direction, to derive correction models for it, and to investigate the impact of these corrections to the sea level (climate) record. For this the PhD candidate will compare CryoSat-2 and Sentinel-3 altimetric SAR with Sentinel-1 imaging SAR, with wave data from other sources and investigate (even) higher-resolution fully-focused processed SAR altimetry. The study will also serve other (upcoming) missions: Sentinel-6 (launch late 2020) will enable direct comparison of low-resolution altimetry with reduced SAR, standard SAR and full SAR altimetry, providing a perfect platform to calibrate and validate the results. The PhD candidate will publish the results through a dissertation which collects at least 3 peer reviewed papers on (parts of) the study.

Requirements

Applicants should have a Master degree from a renowned institution in Aerospace, Civil, Earth sciences, Climate or Geodetic Engineering, or another area deemed relevant for the proposed research. Acquaintance with satellite altimeter processing and research is considered an asset. Strong motivation, creativity, and proactivity are welcomed, as well as good interpersonal communication skills. A combination of good mathematical/analytical skills and interest in ocean/ice research is required. Applicants should be good in spoken and written English, and willing to improve to facilitate publishing the results.

Conditions of employment

TU Delft offers an attractive benefits package, including a flexible work week 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.tudelft.nl/phd for more information.

Information and application

For more information about this position, please contact Assistant Professor M.C. Naeije on +31 (0)15-2783818, e-mail: m.c.naeije@tudelft.nl

To apply, please send by e-mail a single pdf file that includes application letter, curriculum vitae, transcripts of MSc degrees, a copy of the MSc diploma, proof of English language skills if applicable, and the names of two references, to Mrs. Relly van Wingaarden, management asst.: N.vanWingaarden@tudelft.nl before 1 May 2020. When applying for this position, please refer to the vacancy number. If your MSc diploma and transcript are not in Dutch, English, French or German and you will be the selected candidate, the TU Delft will ask you to deliver a certified translation. For more information about the selection procedure you can contact Relly van Wingaarden as well.

When applying for this position, please refer to [vacancy number LR20.09](#).