

RadioNet support for Short Term Missions Application form

STM INFORMATION	
APPLICANT 'S NAME	Marcis Bleiders
APPLICANT'S AFFILIATION	Ventspils International Radioastronomy Center (VIRAC) of Ventspils University College (VUC)
HOST INSTITUTE	Yebes Observatory, IGN, Spain Contact person: José Antonio López Fernández e-mail: ja.lopez@oan.es
DATE OF THE STM	One week between 12 and 24 june, 2017
TOTAL COST OF STM	1200 EUR
OTHER SOURCES OF FUNDING	Ventspils University College (VUC)
Request	
Topic	<ol style="list-style-type: none"> 1. Familiarization with RFI measurement methodology which will be used for RFI determination at EVN stations, including Irbene, in context of BRAND receiver development 2. Familiarization with broadband front-end development at Yebes for the purpose of possible future receivers (BRAND) assessment or adaptation in Irbene radio telescope system 3. Acquisition of practical experience about Radio Holography measurement procedure carried out at Yebes station.
Proposed work	<p>It is proposed that applicant will get familiar with standard RFI measurement procedure which will be carried out at EVN stations in context of BRAND development. This includes learning about necessary instrumentation, calibration, data processing techniques and actual steps for generation of compatible/comparable RFI measurement data, needed for RadioNet project. If possible, during this cooperation, applicant will have chance to get hands-on practical experience in actual RFI measurement process at Yebes radio telescope.</p> <p>Familiarization with broadband front-end development at Yebes includes learning about employed radio telescope feed and LNA modelling software, prototyping, verification technologies and techniques, used for measurements of broadband feed antenna and low noise amplifier parameters as well as whole system verification in final radio telescope system, such that this knowledge would be useful for possible broadband receiver implementation and/or assessment in Irbene RT-32 and RT-16 systems.</p> <p>Proposed work regarding to Radio Holography would be to carry out actual measurement at Yebes station, which includes preparing of necessary hardware and software, pattern measurement, data processing, calibration and results assessment.</p>

<p>Cross-disciplinary</p>	<p>As VIRAC engineers have relatively small experience in radio astronomy related system design and employment, proposed collaboration will increase practical experience and field of view. It will help to better understand how improve existing development and telescope facilities of VIRAC, for example implementation of correct routine RFI measurement system will greatly benefit for future RFI mitigation at Irbene site.</p> <p>Radio holographic measurement knowledge will help to improve current Irbene radio telescope performance, because currently such measurement system is not implemented at Irbene. Also, it is planned to carry out first holographic measurements of Irbene RT-32 surface within possible doctoral thesis of applicant.</p>
<p>Impact</p>	<p>Expanded practical experience and field of view of VIRAC staff knowledge will positively impact Irbene radio telescope system performance as EVN station. In addition to that, VIRAC is directly connected to Ventspils University College (VUC), and improved quality of local engineering, research and development activities will help to attract future engineering students, improve existing study quality as a result higher level specialists will potentially be prepared for work in technical fields related particularly to communication technologies.</p>
<p>Curriculum Vitae</p>	<p>First name, last name: Marcis Bleiders Birth data: May 21, 1990</p> <p>Education: 21/06/2015 Master's degree in Electronics Ventspils University College, Ventspils (Latvia) ISCED-2011: 4 Higher education 47</p> <p>Current employment: Engineer at Ventspils International Radioastronomy Center of Ventspils University College</p> <p>Scientific publications: M. Bleiders, J. Trokss, M. Elerts, Potential Of VIRAC* RT-32 And RT-16 Antennas To Serve As Satellite Ground Station, Latvian Journal of Physics and Technical Sciences Volume 52 Issue 1 (Feb 2015) M. Bleiders, J. Trokss, Development of receiver system for radio-astronomical observations at L band, Space Research Review, Vol.4 (2016) VI. Bezrukovs, M. Bleiders, A. Orbidans, D. Bezrukov, Broadband receiving systems for 4.5-8.8 GHz radio astronomical observations at irbene radio telescopes RT-32 and RT-16, Space Research Review, Vol.4 (2016)</p>