

The 2017 Summer Campaign for Night Sky Brightness Measurements on the Tuscan Coast

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Abstract : The presentation will report the activities managed during the Summer of 2017 by a team composed by staff from a University Department, a National Research Council Institute, and an outreach NGO, collecting measurements of night sky brightness and other information on artificial lighting, in order to characterize light pollution issues on portions of the Tuscan coast, in Central Italy. These activities combine measurements collected by the principal scientists, citizen science observations led by students, and outreach events targeting a broad audience. This campaign aggregates the efforts of three actors: the BuoMetria Partecipativa project, which started collecting light pollution data on a national scale in 2008 with an environmental engineering and free/open source GIS core team; the Institute of Biometeorology from the National Research Council, with ongoing studies on light and urban vegetation and a consolidated track record in environmental education and citizen science; the Department of Biology from the University of Pisa, which started experiments to assess the impact of light pollution in coastal environments in 2015. While the core of the activities concerns in situ data, the campaign will account also for remote sensing data, thus considering heterogeneous data sources. The aim of the campaign is twofold: (1) To test actions of citizen and student engagement in monitoring sky brightness (2) To collect night sky brightness data and test a protocol for applications to studies on the ecological impact of light pollution, with a special focus on marine coastal ecosystems. The collaboration of an interdisciplinary team in the study of artificial lighting issues is not a common case in Italy, and the possibility of undertaking the campaign in Tuscany has the added value of operating in one of the territories where it is possible to observe both sites with extremely high lighting levels, and areas with extremely low light pollution, especially in the Southern part of the region. Combining environmental monitoring and communication actions in the context of the campaign, this effort will contribute to the promotion of night skies with a good quality as an important asset for the sustainability of coastal ecosystems, as well as to increase citizen awareness through star gazing, night photography and actively participating in field campaign measurements.

Keywords : citizen science, light pollution, marine coastal biodiversity, environmental education

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