



## **ORCA: Future Antarctic Cosmic Ray Observatory**

Juan José Blanco (1), Óscar García-Población (1), José Medina (1), Ignacio García-Tejedor (1), Manuel Prieto (1), Sindulfo Ayuso (1), Raul Gómez-Herrero (1), Juan Garzón (2), Almudena Gomis (3), Victor Villasante-Marcos (3), Manuel Seco (2), Anna Morozova (4), Georgi Kornakov (5), Teresa Kurtukian (6), Alberto Blanco (7), Bernd Heber (8), Christian Steigies (8), and Helena Krüger (9)

(1) University of Alcalá, (2) University of Santiago de Compostela, (3) Instituto Geografico Nacional, (4) CITEUC-Univ. de Coimbra, (5) TU-Darmstadt, (6) CEN-Bordeaux, (7) LIP-Coimbra, (8) IEAP, Christian-Albrechts-Universität zu Kiel, (9) Faculty of Natural Sciences, North-West University Potchefstroom

A new cosmic ray instrument, the Antarctic Cosmic Ray Observatory (ORCA), has been designed to perform a North to South latitudinal survey, onboard the research vessel Hesperide, in the end of 2018 and to be finally settled at Juan Carlos I Antarctic Station. ORCA will feature a 3NM64 neutron monitor, a set of three bare BP28 counters, a muon telescope (MITO) and a RPC based detector (TRISTAN). The combination of these detectors will allow us to measure neutrons, muons, protons, electrons and gamma rays arriving to the ORCA's location. Both MITO and TRISTAN will provide direct directional information about incoming particles. These capabilities allows to study the effect of solar activity on the cosmic ray transport in the Heliosphere and the most energetic component of solar energetic particles. Together with ORCA, a mini-neutron monitor will also operate along this initial stage of the project. The set up of ORCA is scheduled in a three year period, commissioning (2017-2018), shipping (end of 2018) and initial operation (2019). Two main milestones will be tackled by ORCA in this period, a latitudinal survey on board the Spanish research vessel Hesperides, and its installation in the Antarctic Spanish Base Juan Carlos I. The current status of ORCA is presented and the close future working plans.