

# Aquarius/SAC-D Mission Overview

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## ABSTRACT

Aquarius/SAC-D is a cooperative international mission developed between the National Aeronautics and Space Administration (NASA) of United States of America (USA) and the Comisión Nacional de Actividades Espaciales (CONAE) of Argentina. The overall mission objective is to contribute to the understanding of the total Earth system and the consequences of the natural and man-made changes in the environment of the planet. Major themes are: ocean surface salinity, water cycle, climate, natural hazards and cryosphere.

**Keywords:** Aquarius, SAC-D, Remote Sensing, NASA, CONAE, ESSP, Sea Surface Salinity, Ocean Circulation and Climate Interaction, Global Water Cycle, Hydrology

## 1. INTRODUCTION

Aquarius/SAC-D is a cooperative international mission developed between the National Aeronautics and Space Administration (NASA) of United States of America (USA) and the Comisión Nacional de Actividades Espaciales (CONAE) of Argentina, and includes contributions from Agenzia Spaziale Italiana (ASI), Centre National d'Etudes Spatiales (CNES) and the Canadian Space Agency (CSA). Implementation of Aquarius/SAC-D is governed by the international Memorandum of Understanding (MOU) signed between the NASA & CONAE on 2 March, 2004 in Buenos Aires, Argentina.

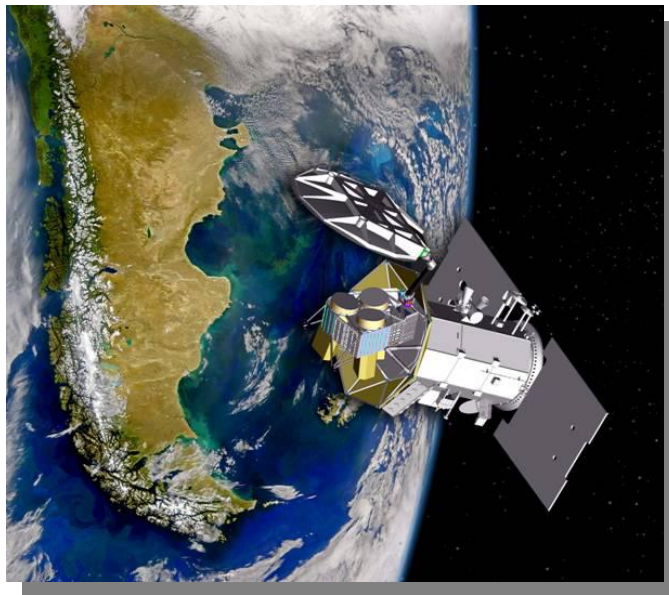


Fig 1: Artist rendition of the Aquarius/SAC-D Observatory

The overall mission objective is to contribute to the understanding of the total Earth system and the consequences of the natural and man-made changes in the environment of the planet. Major themes are: ocean surface salinity, water cycle, climate, natural hazards and cryosphere. The Aquarius Mission focuses on understanding of the interactions between the global water cycle, ocean circulation and climate through the measurement of Sea Surface Salinity (SSS), whereas the SAC-D (Satelite de Aplicaciones Cientificas - D) science mission focuses on complimentary global climatological measurements, environment and hazards monitoring, and region land and ocean imaging for Latin America and elsewhere. The prime instrument of the mission, Aquarius, provides global measurements of salt concentration at the ocean surface. The data is needed to study ocean circulation and heat capacity of the ocean, which in turn affects Earth's climate and the water cycle. Figure 1 shows an artist rendition of the Aquarius/SAC-D Observatory in space looking over the southern part of Argentina.

## 6. SUMMARY

CONAE and NASA have conceived the Aquarius/ SAC-D Mission consistently with the objectives of CONAE's National Space Program and NASA's Earth Science Enterprise Strategic Plan.

Starting in 2009, Aquarius/ SAC-D will provide monthly maps of global SSS over a period of at least three years allowing the study of the global sea surface salinity field and its influence on ocean circulation, climate change and the global water cycle. Additionally, data provided by the Aquarius/ SAC-D mission will potentially provide information about the precipitation, evaporation, soil moisture, atmospheric water vapor, sea surface wind velocity, sea ice extend and other important geophysical parameters.