

PDS\_VERSION\_ID = PDS3  
 LABEL\_REVISION\_NOTE = "2009-11-27 JK: Update PVV 3.5.1  
 2010-04-21 JK: Fixed non ascii symbols  
 2016-10-27 PN: Fixed spelling  
 2017-06-29 PN: Fix energy range & Crew  
 "

RECORD\_TYPE = "STREAM"

OBJECT = INSTRUMENT  
 INSTRUMENT\_HOST\_ID = RO  
 INSTRUMENT\_ID = "RPCICA"

OBJECT = INSTRUMENT\_INFORMATION  
 INSTRUMENT\_NAME = "  
 ROSETTA PLASMA CONSORTIUM - ION COMPOSITION ANALYSER"  
 INSTRUMENT\_TYPE = "PLASMA INSTRUMENT"  
 INSTRUMENT\_DESC = "

#### Instrument Overview

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The Ion Composition Analyzer (ICA) is part of the Rosetta Plasma Consortium(RPC). ICA is designed to measure the three-dimensional distribution function of positive ions in order to study the interaction between the solar wind and cometary particles. The instrument has a mass resolution high enough to resolve the major species such as protons, helium, oxygen, molecular ions, and heavy ions characteristic of dusty plasma regions. ICA consists of an electrostatic acceptance angle filter, an electrostatic energy filter, and a magnetic momentum filter. Particles are detected using large diameter (100 mm) microchannel plates and a two-dimensional anode system. ICA has its own processor for data reduction / compression and formatting. The energy range of the instrument is from 5 eV to 40 keV and an angular field-of-view of 360 deg times 90 deg is achieved through electrostatic deflection of incoming particles.

The ICA instrument is based on the design of three earlier versions of this type of instrument. Those are the TICS instrument flown on the Swedish-German research satellite Freja which was operated between 1992-1996, the IMIS instrument which was part of the ASPERA-C experiment on the ill-fated Mars-96 mission, and the IMI instrument on the Japanese Nozomi mission to Mars. The instrument also has heritage from the ASPERA experiment flown on the Soviet spacecraft Phobos-2 to Mars. Furthermore an almost identical mass resolving ion spectrometer has been flown on the Mars Express mission, the IMA sensor of the ASPERA-3 instrument. One more copy, only slightly modified, is part of the ASPERA-4 instrument on Venus Express.

#### RPC-ICA Characteristics

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Quantity	Range
Energy: Range	5 eV to 40 keV
Resolution	Delta E/Es=0.07
Scan: 32 (solar wind)	96 (otherwise)
Angle: Range (FOV)	90 x 360 degrees
Resolution	5.0 x 22.5 degrees (16 elevation steps x 16 sectors)

#### Temporal

*remove extra character - - - there is no "\$" here*