



**HAL**  
open science

## Halogens at Comet 67P/Churyumov-Gerasimenko observed by ROSINA-DFMS

Frederik Dhooghe, Kathrin Altwegg, Jean-Jacques Berthelier, Christelle Briois, Ursina Calmonte, Gaël Cessateur, Michael R. Combi, Johan de Keyser, Eddy Equeter, Björn Fiethe, et al.

### ► To cite this version:

Frederik Dhooghe, Kathrin Altwegg, Jean-Jacques Berthelier, Christelle Briois, Ursina Calmonte, et al.. Halogens at Comet 67P/Churyumov-Gerasimenko observed by ROSINA-DFMS. EGU General Assembly 2016, Apr 2016, Vienne, Austria. insu-03573528

**HAL Id: insu-03573528**

**<https://insu.hal.science/insu-03573528>**

Submitted on 15 Feb 2022

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License



## **Halogens at Comet 67P/Churyumov-Gerasimenko observed by ROSINA-DFMS**

Frederik Dhooghe (1), Kathrin Altwegg (2), Jean-Jacques Berthelier (3), Christelle Briois (4), Ursina Calmonte (2), Gaël Cessateur (1), Michael R. Combi (5), Johan De Keyser (1), Eddy Equeter (1), Björn Fiethe (6), Stephen Fuselier (7), Andrew Gibbons (1), Tamas Gombosi (5), Herbert Gunell (1), Myrtha Hässig (2,7), Léna Le Roy (2), Romain Maggiolo (1), Urs Mall (8), Bernard Marty (9), Eddy Neefs (1), Martin Rubin (2), and the ROSINA Team (1) Royal Belgian Institute for Space Aeronomy, Brussels, Belgium, (2) Physikalisches Institut, University of Bern, Bern, Switzerland, (3) LATMOS/IPSL, Université Versailles Saint-Quentin, France, (4) LPC2E, Université d'Orléans, France, (5) Department of Atmospheric, Oceanic and Space Sciences, University of Michigan, Ann Arbor, Michigan, USA, (6) Institute of Computer and Network Engineering, TU Braunschweig, Braunschweig, Germany, (7) Southwest Research Institute, San Antonio, Texas, USA, (8) Max-Planck-Institut für Sonnensystemforschung, Göttingen, Germany, (9) CRPG-CNRS, Université de Lorraine, France

Since August 2014, the Rosetta spacecraft has been studying the coma of comet 67P/Churyumov-Gerasimenko. The Rosetta Orbiter Spectrometer for Ion and Neutral Analysis (ROSINA) sensor DFMS is a double focussing mass spectrometer with a mass range 13–140 u/e. It is optimized for high mass resolution and large dynamic range and is a tool for the characterization of the volatiles in the coma.

The hydrogen halides hydrogen fluoride (HF), hydrogen chloride (HCl) and hydrogen bromide (HBr) have been measured in the coma of comet 67P/Churyumov-Gerasimenko using DFMS. This presents the first time HBr has been detected in a comet. This presentation will focus on the abundance, variability and isotopic ratios of the halogens in the coma.

Since comets retained information about the physical and chemical conditions of the protoplanetary disk from which they formed, these results may provide insights into the halogen chemistry in the early Solar System.