



HAL
open science

Whistler waves observed by Solar Orbiter during its first orbit

Matthieu Kretzschmar, Thomas Chust, Daniel Graham, Volodya Krasnosekskikh, Lucas Colomban, Milan Maksimovic, Timothy Horbury, Christofer Owen, Philippe Louarn

► To cite this version:

Matthieu Kretzschmar, Thomas Chust, Daniel Graham, Volodya Krasnosekskikh, Lucas Colomban, et al.. Whistler waves observed by Solar Orbiter during its first orbit. EGU General Assembly 2021, Apr 2021, online, France. 10.5194/egusphere-egu21-15195 . hal-03215772

HAL Id: hal-03215772

<https://hal.sorbonne-universite.fr/hal-03215772v1>

Submitted on 3 May 2021

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.

EGU21-15195

<https://doi.org/10.5194/egusphere-egu21-15195>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Whistler waves observed by Solar Orbiter during its first orbit

Matthieu Kretschmar¹, Thomas Chust², Daniel Graham³, Volodya Krasnosekskikh¹, Lucas Colombari¹, Milan Maksimovic⁴, Timothy Horbury⁷, Christofer Owen⁵, and Philippe Louarn⁶

¹LPC2E, CNRS and University of Orléans, France (matthieu.kretschmar@cnrs-orleans.fr)

²LPP, CNRS, Ecole Polytechnique, Sorbonne Université, Observatoire de Paris, Université Paris-Saclay, Palaiseau, Paris, France (thomas.chust@lpp.polytechnique.fr)

³Swedish Institute of Space Physics (IRF), Uppsala, Sweden (dgraham@irfu.se)

⁴LESIA, Observatoire de Paris, Université PSL, CNRS, Sorbonne Université, Univ. Paris Diderot, Sorbonne Paris Cité, France (milan.maksimovic@obspm.fr)

⁵Mullard Space Science Laboratory, University College London, UK (c.owen@ucl.ac.uk)

⁶IRAP, CNRS and Université Paul Sabatier – Toulouse III, Toulouse, France (Philippe.Louarn@irap.omp.eu)

⁷Space and Atmospheric Physics, The Blackett Laboratory, Imperial College London, London (t.horbury@imperial.ac.uk)

Plasma waves can play an important role in the evolution of the solar wind and the particle velocity distribution functions in particular. We analyzed the electromagnetic waves observed above a few Hz by the Radio Plasma Waves (RPW) instrument suite onboard Solar Orbiter, during its first orbit, which covered a distance from the Sun between 1 AU and 0.5 AU. We identified the majority of the detected waves as whistler waves with frequency around $0.1 f_{ce}$ and right handed circular polarisation. We found these waves to be mostly aligned or anti aligned with the ambient magnetic field, and rarely oblique. We also present and discuss their direction of propagation and the variation of the waves' properties with heliocentric distance.