



EPN2020-RI

EUROPLANET2020 Research Infrastructure

H2020-INFRAIA-2014-2015

Grant agreement no: 654208

Deliverable D10.4- PSWS Alert Service

Due date of deliverable: 28/02/2019

Actual submission date: 28/02/2019

Start date of project: 01 September 2015

Duration: 48 months

Responsible WP Leader: CNRS, Nicolas André

Project funded by the European Union's Horizon 2020 research and innovation programme		
Dissemination level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Service)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (excluding the Commission Services)	

Project Number	654208
Project Title	EPN2020 - RI
Project Duration	48 months: 01 September 2015 – 30 August 2019

Deliverable Number	D10.4
Contractual Delivery date	28.02.2019
Actual delivery date	28.02.2019
Title of Deliverable	PSWS Alert Service
Contributing Work package (s)	WP10
Dissemination level	Public
Author (s)	Nicolas Andre (CNRS)

Abstract: Under Horizon 2020, the Europlanet 2020 Research Infrastructure (EPN2020-RI) includes an entirely new Virtual Access Service, “Planetary Space Weather Services” (PSWS) that extends the concepts of space weather and space situational awareness to other planets in our Solar System and in particular to spacecraft that voyage through it. PSWS provide twelve new services to the research community, space agencies, and industrial partners planning space missions. These services are in particular dedicated to the following key planetary environments: Mars (in support of the NASA MAVEN and European Space Agency (ESA) Mars Express and ExoMars missions), comets (building on the outstanding success of the ESA Rosetta mission), and outer planets (in preparation for the ESA JUper ICy moon Explorer mission), and one of these services aims at predicting and detecting planetary events like meteor showers and impacts in the Solar System. This gives the European planetary science community access to new methods, interfaces, functionalities and/or plugins dedicated to planetary space weather as well as to space situational awareness in the tools and models available within the partner institutes. With its Planetary Space Weather Service (PSWS), the Europlanet-H2020 Research Infrastructure (EPN2020RI) project is proposing a compelling set of databases and tools to that provides Space Weather forecasting throughout the Solar System. A service of alerts has been developed with the objective to facilitate discovery or prediction announcements within the PSWS user community in order to watch or warn against specific events.

The present report describes the operational PSWS alert service.

Contents

1. Context.....	4
2. Alert system at CNRS.....	4
3. Publication from OBSPARIS	4

1. Context

With its Planetary Space Weather Service (PSWS), the Europlanet-H2020 Research Infrastructure (EPN2020RI) project is proposing a compelling set of databases and tools that provides Space Weather forecasting throughout the Solar System. A service of alerts has been developed with the objective to facilitate discovery or prediction announcements within the PSWS user community in order to watch or warn against specific events.

2. Alert system at CNRS

The CDPP (Centre de Données de la Physique des Plasmas, (<http://cdpp.eu/>), the French data center for plasma physics, is engaged for two decades in the archiving and dissemination of plasma data products from space missions and ground observatories. Under Horizon 2020, the Europlanet Research Infrastructure includes PSWS (Planetary Space Weather Services), a set of new services that extend the concepts of space weather and space situation awareness to other planets of our solar system. One of these services is an **Alert service** associated with solar wind prediction made using the CDPP Heliopropa service (<http://heliopropa.irap.omp.eu>), detection of meteor shower, lunar flash and cometary tail crossing. This Alert service, is based on **VOEvent**, an international standard proposed by the IVOA and widely used by the astronomy community. The VOEvent standard provides a means of describing transient celestial events in a machine-readable format. VOEvent is associated with VTP, the VOEvent Transfer Protocol that defines the system by which VOEvents may be disseminated to the community. VTP is managed with Comet, a freely available and open source software. Comet is used by PSWS for its Alert service and several partners of PSWS, including the CDPP, SRC PAS and Observatoire de Paris.

The PSWS Alert system at CDPP is available at:

<http://alerts-psws.irap.omp.eu/>

Users can register to receive alerts about the detection of giant planet fireballs, lunar flashes/impacts, and cometary tail disconnection event. Users can also request automatic or manual alerts for the prediction of solar wind dynamics pressure at Mars and Jupiter. Users can also report a giant planet fireball, a lunar impact/flash, or a cometary tail disconnection event in order to alert the community.

The service is fully operational since October 2018.

3. Publication from OBSPARIS

A publication has been submitted on the use of the VOEvent protocol that has been used for the alert service of PSWS.

B. Cecconi et al., VOEvent for Solar and Planetary Sciences, submitted to Journal of Space Weather and Space Climate, in revision, 2019