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OpenPlanetaryMap Updates: Planetary Basemaps and Geocoding Web Services

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OpenPlanetaryMap (OPM) is a collaborative project to build the first Open Planetary Mapping and Social platform for researchers, educators, storytellers, and the general public. We want to make it easy for anyone to create and share maps and locations on any planets or bodies in our Solar System [1].

Our platform architecture is based on four main service-oriented components: (1) an open repository of geospatial *datasets*; containing information used to create basemaps and to enable location-based searches, (2) *basemaps* that are needed to build any types of web mapping applications or geospatial data visualisation, (3) geocoding and geo-referencing *APIs/web services* to enable location-based searches and crowdsourcing of our datasets repository, (4) Web app, Python module and CLI *interfaces* to search, add and share places on planetary bodies.

Since the project started as an initiative funded by Europlanet in 2017, we have consolidated our network of collaborators and we published our first planetary basemaps and design concept [2]. Instructions on how to use our basemaps are available from our new website [3]. External projects have started to use OPM basemaps, for example: PLANMAP Stories [4] and CaSSIS Map Interface [5]. While we continue to improve our basemaps and create new ones, we have been working on providing an open planetary geocoding API/web service and user interfaces.

The purpose of our planetary geocoding API is to provide a common and consistent way of defining and searching for places on the surface of bodies in the Solar System, including the Earth. We are first implementing our geocoding API as a JavaScript module, along with our first web map interface that demonstrates its use. We will then focus on implementing our geocoding API as a Python module.

We introduce the project and present recent updates on OPM planetary basemaps, geocoding APIs and user interfaces.

[1] Manaud et al. (2018). OpenPlanetaryMap: Building the first Open Planetary Mapping and Social platform for researchers, educators, storytellers, and the general public. European Planetary Science Congress 2018, 12, EPSC2018-78. [2] Nass et al. (2019). Towards a new face for Planetary Maps: Design and web- based Implementation of Planetary Basemaps. Adv. Cartogr. GIScience Int. Cartogr. Assoc., 1, 15, 2019. <https://doi.org/10.5194/ica-adv-1-15-2019> [3]
<http://openplanetarium.org> [4] <https://stories.planmap.eu/mars/gale> [5]
<http://cassis.halimedde.unibe.ch>