

Press Report – CHIME 2021 Mission

The *University of Zurich (UZH)* is organising a scientific airborne imaging campaign in Europe in collaboration with *NASA/JPL* and on behalf of the *European Space Agency (ESA)*. The sensor system *Airborne Visible InfraRed Imaging Spectrometer - Next Generation (AVIRIS-NG)* will be operated by *NASA/JPL* on an US aircraft owned by *Dynamic Aviation*. The main objective of the *CHIME 2021* campaign is to support the *ESA* satellite mission *Copernicus Hyperspectral Imaging Mission for the Environment (CHIME)* as well as *NASA's Surface Biology and Geology (SBG)* project. The two missions mainly focus on gaining knowledge on the topic of the management of natural resources. This contains, e.g., services for food security and agriculture, which include sustainable agricultural and biodiversity management, soil properties characterisation, sustainable mining practices and environment preservation. The *SBG* study also focuses on terrestrial and aquatic ecosystems and other elements of biodiversity, geology, volcanoes, the water cycle and applied sciences topics relevant to many societal benefit areas.

The *CHIME* airborne campaign operating *AVIRIS-NG* is primarily used to provide calibration and validation measurements for future satellite mission preparations. Data will furthermore be used for the validation of existing satellite missions such as *PRISMA* or *DESI*. This ensures high quality data of the space-based instruments and their products.



Figure 1 A King Air B200 is used as airborne platform for AVIRIS-NG.

Imaging spectroradiometers, or hyperspectral imagers, are instruments that are able to measure electromagnetic radiation reflected, transmitted or absorbed from the Earth's surface in narrow wavelength intervals (so-called bands). *AVIRIS-NG* is operating over a spectral range from 380 – 2510 nm. *AVIRIS-NG* is particularly used for research in the fields of ecology and biodiversity but can also map trace gases like methane.

Mission planning is coordinated by the *Remote Sensing Laboratories (RSL)*, *University of Zurich*. The campaign is scheduled from May to mid-July 2021. The flights will be conducted from the home bases at the airports *Duebendorf (LSMD)* and *Zurich Kloten (LSZH)*, wherefrom international flights are planned in the following countries: Switzerland, Belgium, Finland, France, Germany, Italy, Netherlands, Romania, Spain and the UK.

Ground reference measurements for calibration and validation purposes of the airborne missions will also be collected during airborne imaging overpasses and are conducted using portable field instruments. The field measurements will be obtained by participating institutes, requiring *UZH* to

disseminate flight planning information to allow the field teams to be ready at the appropriate location and time. Furthermore, it is planned to carry out a test of near-real time data delivery with a web portal, where mission participants can download the data shortly after a mission has been flown.

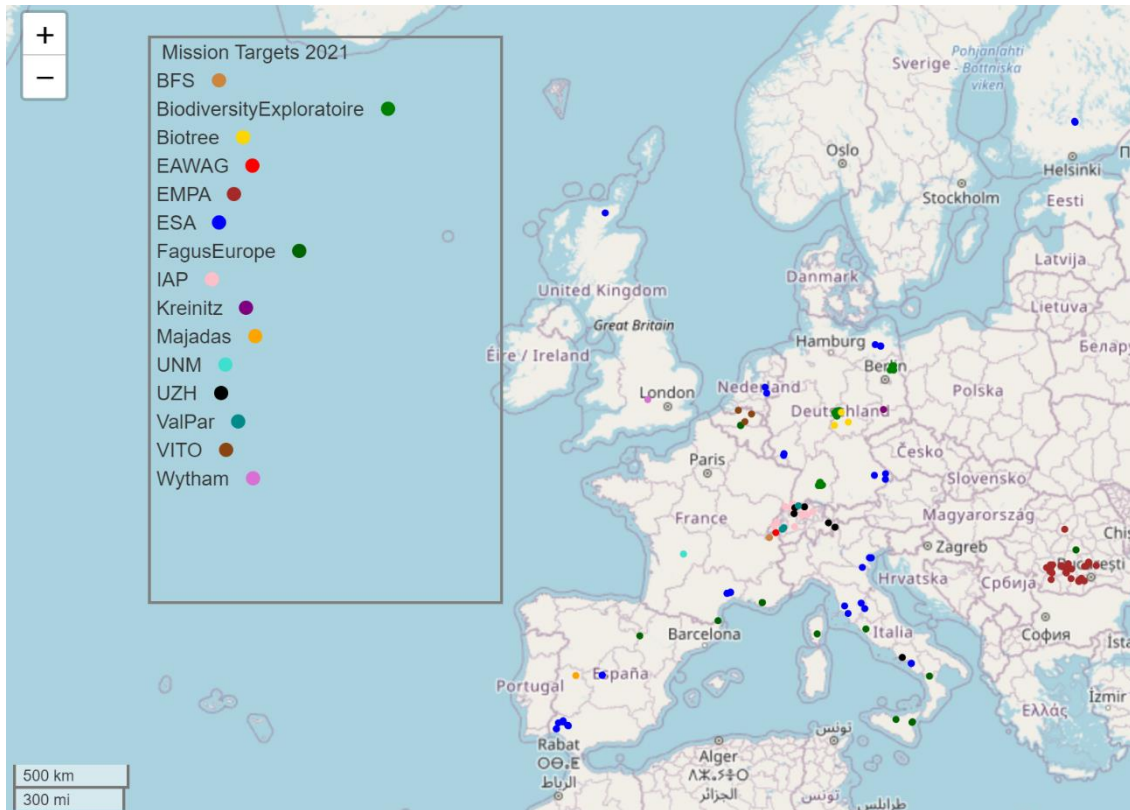


Figure 2 The mission sites of the campaign 2021.

To see current status updates please visit the campaign's Twitter site on: twitter.com/AVIRIS_NG_RSL or the campaign's webpage on: https://ares-observatory.ch/esa_chime_mission_2021/

To learn more about the AVIRS-NG sensor system, please visit: <https://avirisng.jpl.nasa.gov/>

For further information on the CHIME and SBG satellite missions see: <https://directory.eoportal.org/web/eoportal/satellite-missions/content/-/article/chime-copernicu-1>
<https://sbg.jpl.nasa.gov/>