Identity

PROJECT ACRONYM: FlyRadar

PROJECT TITLE: Low-frequency multi-mode (SAR and penetrating) radar onboard light-weight UAV for Earth and Planetary exploration

PROGRAMME: HORIZON 2020

TOPIC: MSCA-RISE-2020 – Research and Innovation Staff Exchange

START DATE: 01 February 2021

DURATION: 48 months

COORDINATION: International Research School of Planetary Sciences

Partners

IRSPS

CBK PAN

CSFK

Université de Lyon

Lyon 1

Ud'A Università degli Studi "G. d'Annunzio"

CORISTA

HYPERION

EXPLORATION SARL

FlyRADAR

Low-frequency multi-mode (SAR and penetrating) radar onboard light-weight UAV for Earth and Planetary exploration

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WHAT IS FLYRADAR?

The project deals with the production of a dual-mode, **low-frequency, radar installed on board of a light-weight** UAV. The radar will operate into two modes: as Synthetic Aperture Radar (SAR) and as ground penetrating radar. Both instruments provide extremely interesting images that are extensively used in **Earth and planetary observations**.

However, these airborne systems are bulky and can be operated only from manned aircraft both planes and helicopters. On the other hand, the few drones that can sustain such a equipment are large and heavy. In both cases, the operations are expensive and has a complicate logistic. The quantum leap of FlyRadar consists of installing this **radar system onboard small and light electric octocopters, providing low cost utilisation and easy operations**. This affordable system will enlarge the user communities generating the possibility for an extensive use of FlyRadar taking advantage of the potentiality of this long-lasting innovation.

WHICH ARE THE PROJECT'S OBJECTIVES?

Two specific objectives

Scientific, technical and business oriented objectives

- Obj-1 Apply the comparative knowledge of the participants
- Obj-2 Achieve ideal application of radar facility
- Obj-3 Validate and adapt a prototype using terrestrial analogue
- Obj-4 Identify the economic feasibility and impact of the instrument for both space and non-space markets

Training and mobility objectives

- T&M-1 Development of an initial research and training network
- T&M-2 Multidisciplinary and international approach based on the development of a prototype
- T&M-3 Support early career researchers
- T&M-4 Development in a competitive business market environment.

WHAT IS THE FOLLOWED METHODOLOGY?

To assure effective management, the FlyRadar project is divided into 9 work packages.

- WP1 Scientific aims for Mars Subsurface analyses and Terrestrial analogues
- WP2 System Requirements
- WP3 Design and manufacturing radar
- WP4 Design and manufacturing drone
- WP5 Model qualification campaign
- WP6 Validation and test field campaign
- WP7 Transfer of Knowledge, training and networking
- WP8 Communication, Dissemination and Exploitation
- WP9 Project Office