



Università
Ca'Foscari
Venezia

PROJECT ACRONYM AND TITLE: REFIND - Remote strategies for fossil finding: multispectral images and species distributional modelling applications for large-scale palaeontological surveys.

FUNDING PROGRAMME: HORIZON 2020

CALL: H2020-MSCA-IF-2017-GF – Marie Skłodowska-Curie Individual Fellowships – Global Fellowship

SCIENTIFIC FIELDS: Earth observations from space/remote sensing, Biogeography, macro-ecology

HOST DEPARTMENT: DAIS - Department of Environmental Sciences, Informatics and Statistics

FELLOW: Elena Ghezzi

SCIENTIFIC RESPONSIBLE: Stefano Malavasi

FINANCIAL DATA:

Project total costs	Overall funding assigned to UNIVE
€ 262.269,00	€ 262.269,00

ABSTRACT:

The REFIND project aims to create a standardized methodology for large-scale palaeontological surveys. The protocol will be applied to the recovery of single exposed fossils, by comparing high-resolution multispectral images with the response of fossils to laboratory-light wavelengths. Where fossils cannot be directly detectable, my method applies the use of GIS spatial analyses to the palaeogeographical distribution of species, filtered with biotic and abiotic data, to recognize suitable areas for new fossil localities. Images will be acquired by multispectral sensors placed on satellites and drones, and predictions will be computed using softwares for spatial raster analyses. Results will consist of thematic maps predicting the location of new exposed fossils and sites, and coordinates will be partially verified through field expeditions. The proposed software tools are available to the large public only since recent years, and their application is now crucially important for preventing the destruction of undiscovered palaeontological heritage by humans and climate changes. The REFIND project will allow researchers to minimize costs and risks related to field research, and to access the first Fossil Endmember Library and to the largest database for Late Pleistocene fossil evidence. The implementation of my results will change the approach of European researchers to palaeontological field work and add to the importance of the European historical fossil collections. I have previous experience in both fields developed in the REFIND project, being developed in the project, allowing me to achieve of all the proposed results. The acquisition of new skills during the fellowship will significantly upgrade my career potential, because multispectral and raster analyses, cutting-edge studies in Europe, have never been applied to palaeontology for such innovative goals. For the same reason, high interest is expected from the research community.

Planned Start date	Planned End date
1st September 2018	31st August 2021

PARTNERSHIP:

1 Università Ca' Foscari, Venezia	Venice (IT)	Coordinator
2 University of Oregon, Eugene	Oregon (US)	Partner
