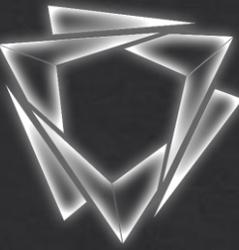


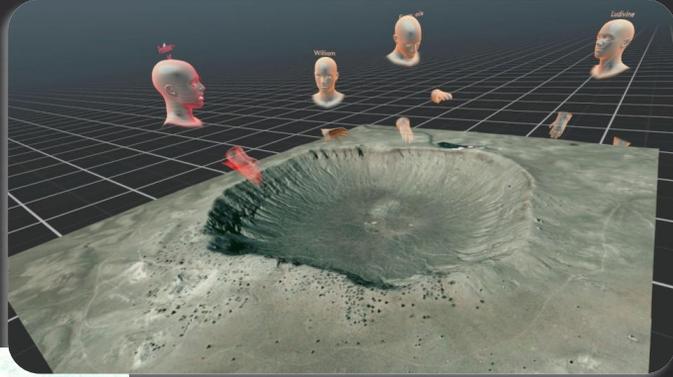
# VR2Planets



VR2Planets

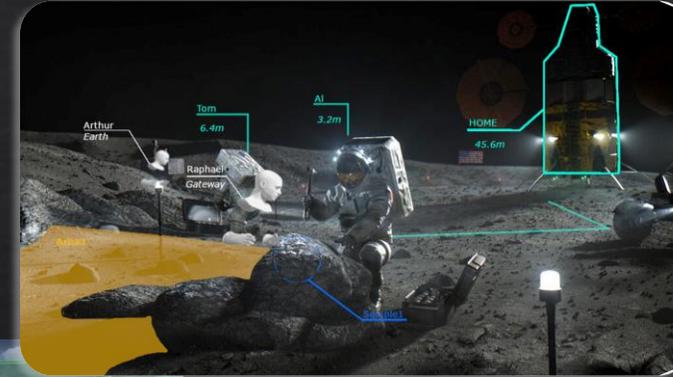
# Usages?

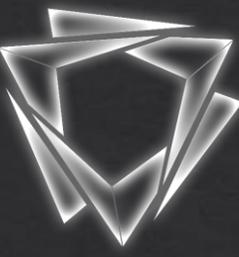
VR



Immersive  
collaboration

AR





VR2Planets

# Usages?

- Medicine
- Industry
- Space
- Defense
- Pedagogy



# La formation en Réalité Virtuelle



Multiplication

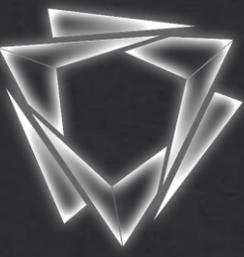
Répétition

Partage



APPRENTISSAGE

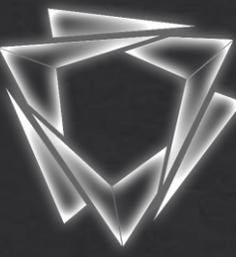
- ◇ Une expérience sensorielle
- ◇ Une mémorisation renforcée
- ◇ Une restitution améliorée



VR2Planets

# Onsight





VR2Planets

# Onsight?

Did it works?

✓ YES

The community adopt it?

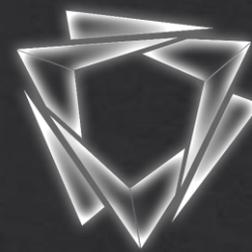
▪ NO

What happened?

- Network management complexity
- Small FOV
- Resistance to change
- Works only inside

→ HW issues

# La géologie virtuelle en France



VR2Planets



Site web SGF

<https://www.geosoc.fr/geologie-virtuelle.html>

# Data Source for virtual environments

## 3D models

### Insérer une page web

Cette application vous permet d'insérer des pages web sécurisées commençant par <https://> dans l'ensemble de diapositives. Pour des raisons de sécurité, les pages web non sécurisés ne sont pas prises en charge.

Veuillez entrer l'URL ci-dessous.

[https:// planet3d.vr2planets.com/viewer/6?password=PM2](https://planet3d.vr2planets.com/viewer/6?password=PM2)

Aperçu

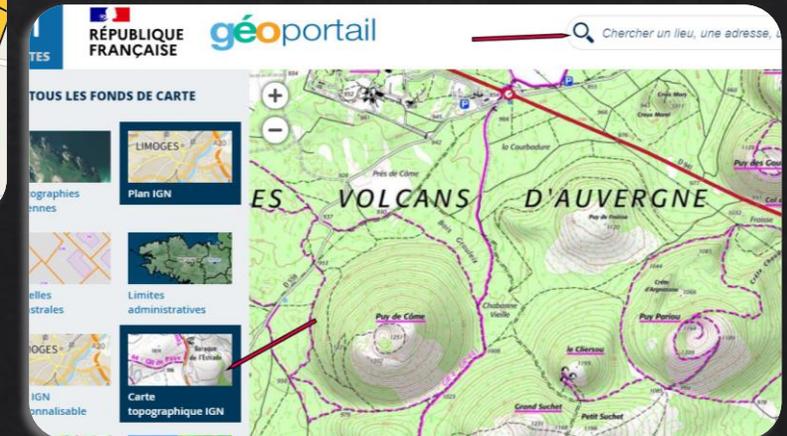
Visionneuse web [Conditions](#) |  
[Confidentialité et cookies](#)

## Georeferenced content



## Web services

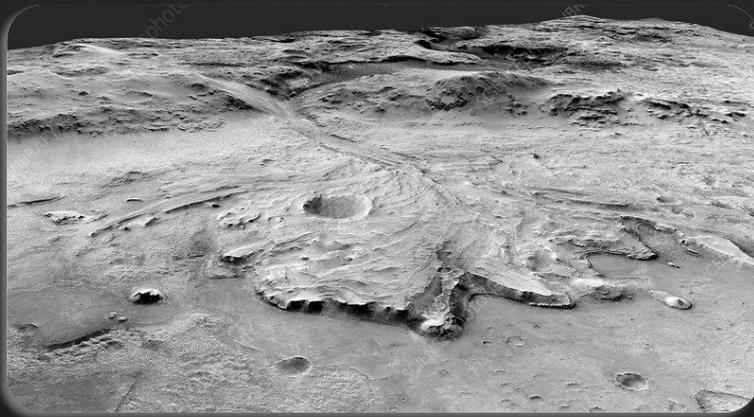
Photogrammetry multi images  
= mesh



# Data Source for virtual environments

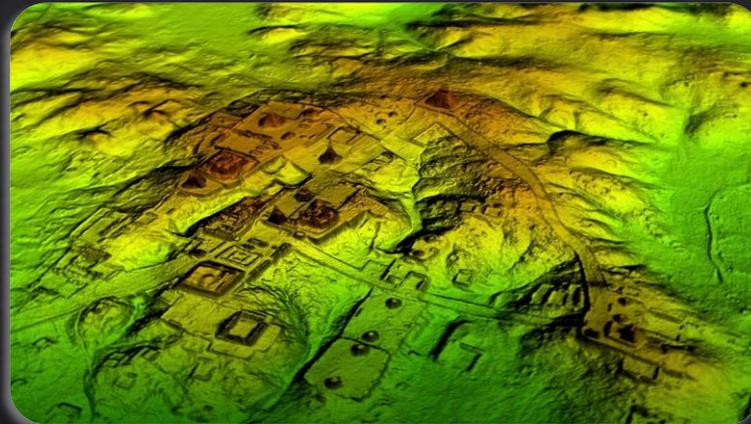
## Satellite

Stereophotogrammetry  
Interferometry RADAR  
= **DTM/orthoimages**



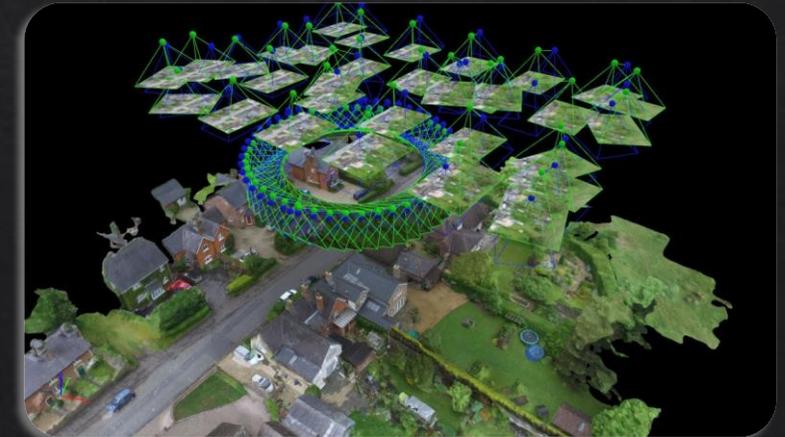
## LIDAR

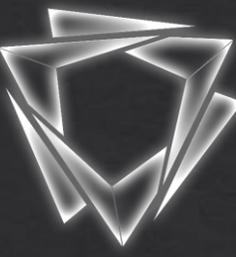
Aeropoorted  
On ground stations  
= **point clouds**



## Images

Photogrammetry multi images  
= **mesh**





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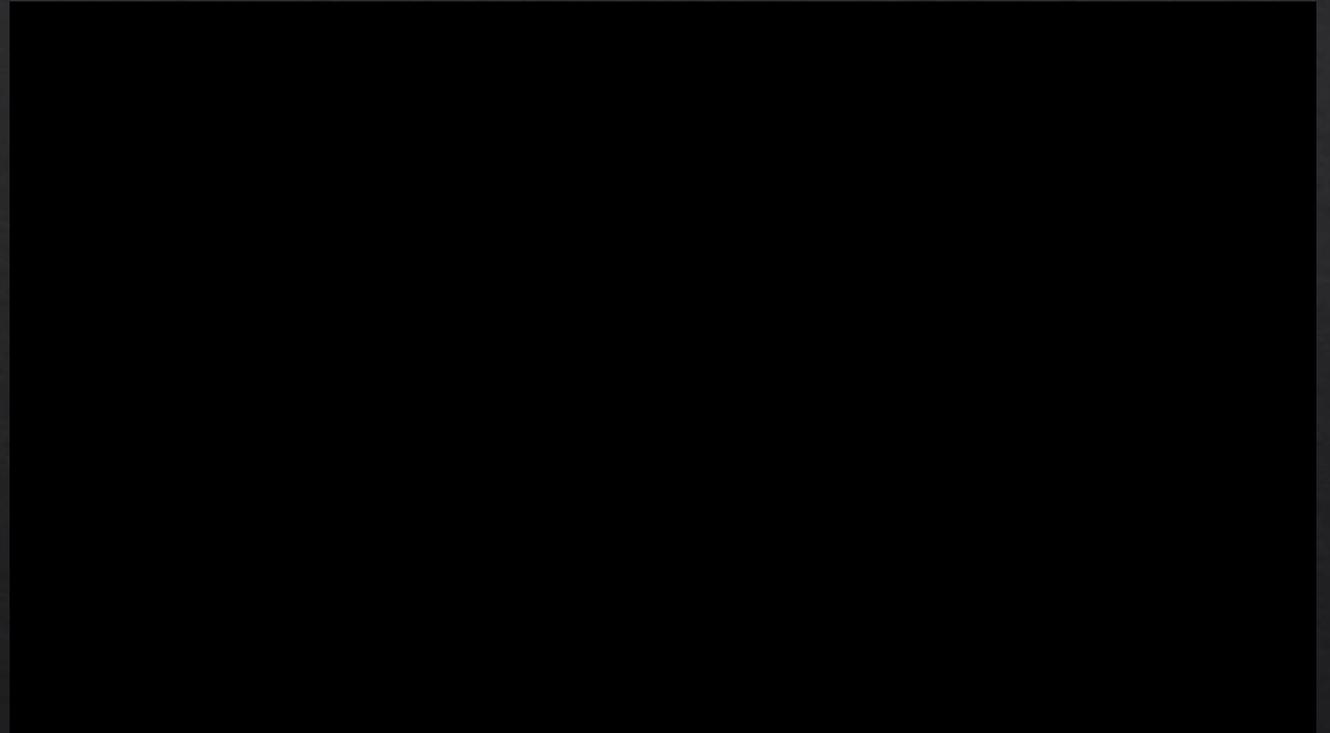
# Skills and products

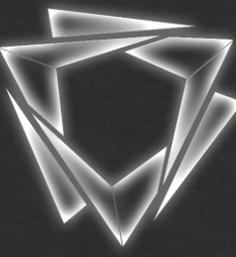
## ◆ Our skills

- ◆ Creation of virtual environment
- ◆ Processing of imagery data from orbit to ground
- ◆ No size nor resolution limit
- ◆ Georeferencing
- ◆ Multi resolution
- ◆ Collaborative sessions
- ◆ Interface with of SPICE kernels
- ◆ High fidelity modelling and rendering of S/C
- ◆ Interactivity of instruments 3D models
- ◆ Integration of real data of instruments

## ◆ Our products

- ◆ 3D and VR immersive applications
- ◆ 2D Interactive applications
- ◆ Videos
- ◆ Images





VR2Planets

# Skills and products

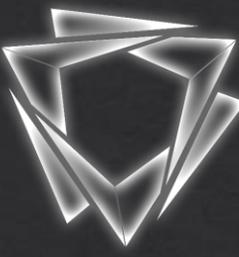
## ◆ Our skills

- ◆ Creation of virtual environment
- ◆ Processing of imagery data from orbit to ground
- ◆ No size nor resolution limit
- ◆ Georeferencing
- ◆ Multi resolution
- ◆ Collaborative sessions
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VR2Planets

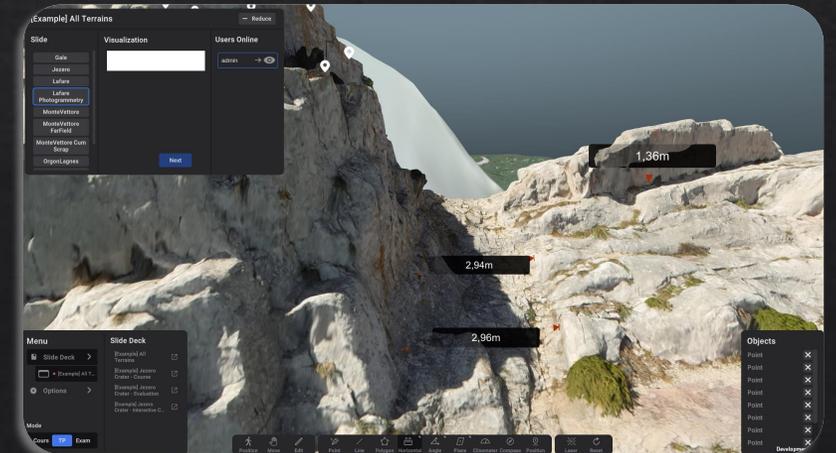
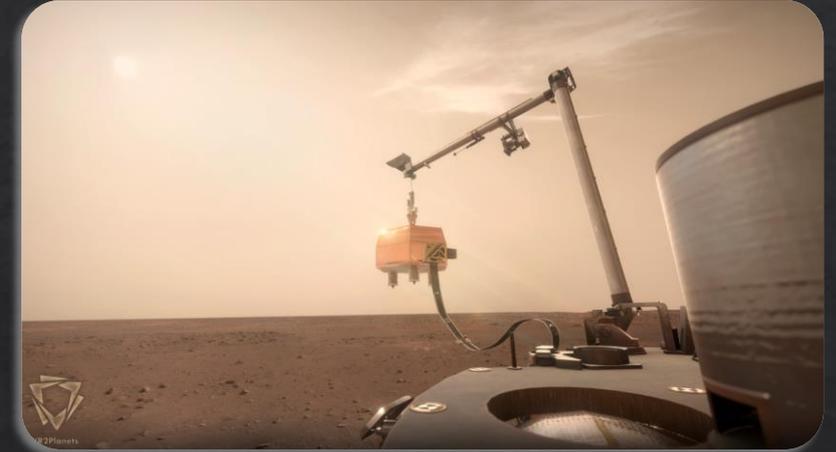
# Produits VR2Planets

## ◆ Développements sur-mesure

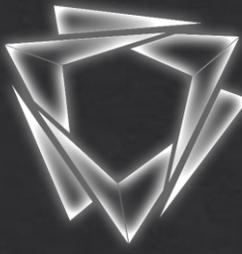
- ◆ Création de contenu 3D/VR à partir des données de l'exploration spatiale
- ◆ Communication et valorisation scientifique
- ◆ Pour Laboratoires de recherche, Agences spatiales

## ◆ Licence VRExplorer - SaaS

- ◆ Logiciel éditable de création de scènes 3D/VR collaboratives
- ◆ Pédagogie des géosciences
- ◆ Cibles
  1. Pour Écoles, Universités
  2. BTP, industrie minière et pétrolière



# ERASMUS Mundus



VR2Planets

## GeoPlanet Erasmus + Strategic Partnership project for higher education (KA203) - 2020-2023



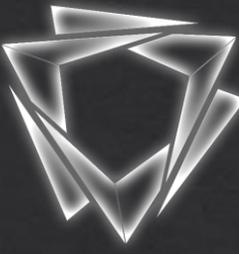
Co-funded by the  
Erasmus+ Programme  
of the European Union

### Context

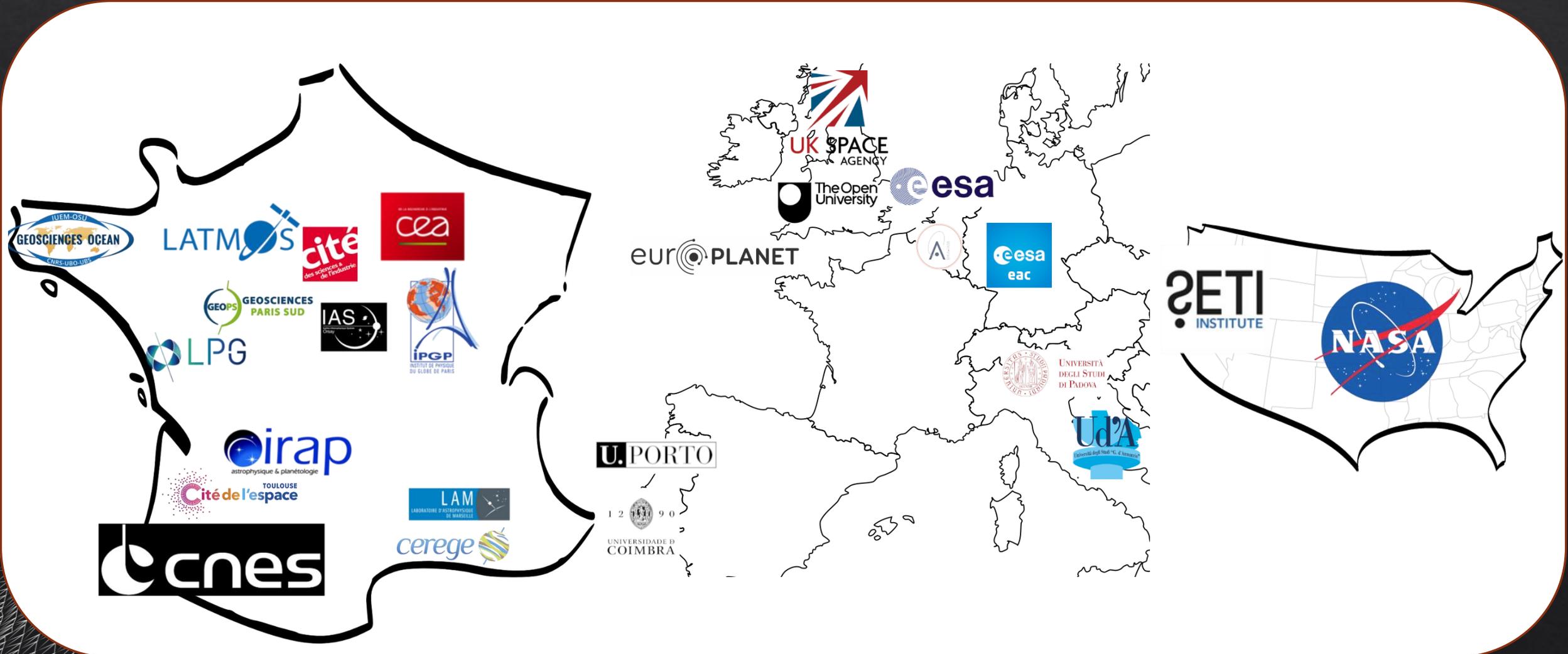
The spectacular progress of space exploration during the last 30 years has allowed the development of Planetary Geosciences, characterised by an increasing involvement at the international level, of specialists of the Earth (geologists, geophysicists, geochemists) in understanding evolutionary processes of other planets. Planetary Geosciences is an interdisciplinary approach combining expertises in observation, experimentation and modelling.

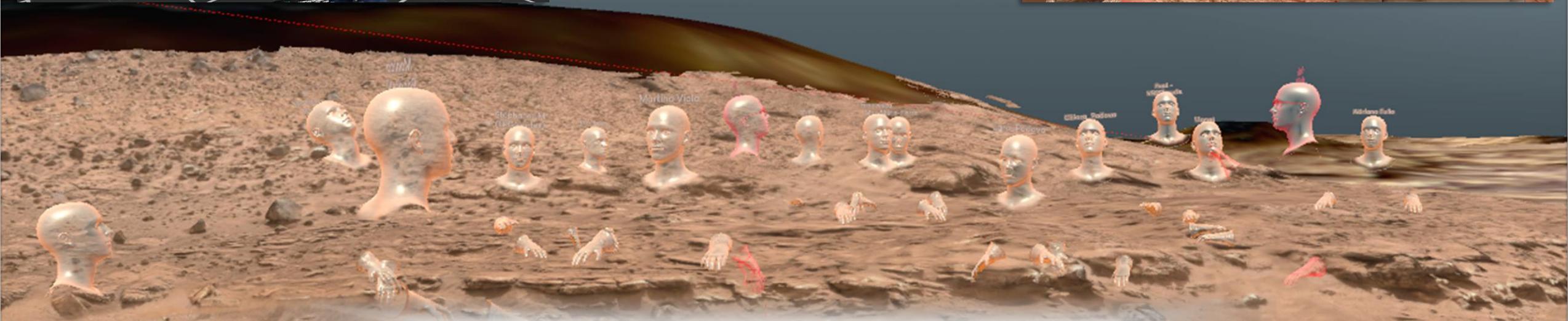
The beginning of the 21st century has been marked by the development of ambitious space exploration programmes by new actors such as India and China. In this competitive context the GPN-SP project addresses the needs of structuring and internationalise the HE training in Planetary Geoscience in EHEA, strengthening excellence, increasing cooperation with industry and proposing a complementarity of fields. Indeed, Masters in Astrophysics and Astronomy, in Planetary Geology and in Planetary and Earth Sciences exist in EHEA but there is currently almost no offer in education which federates all these fields and proposes a combined expertise in research in planetary geosciences.

# Nos utilisateurs et partenaires



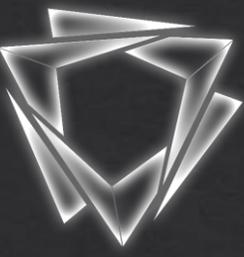
VR2Planets



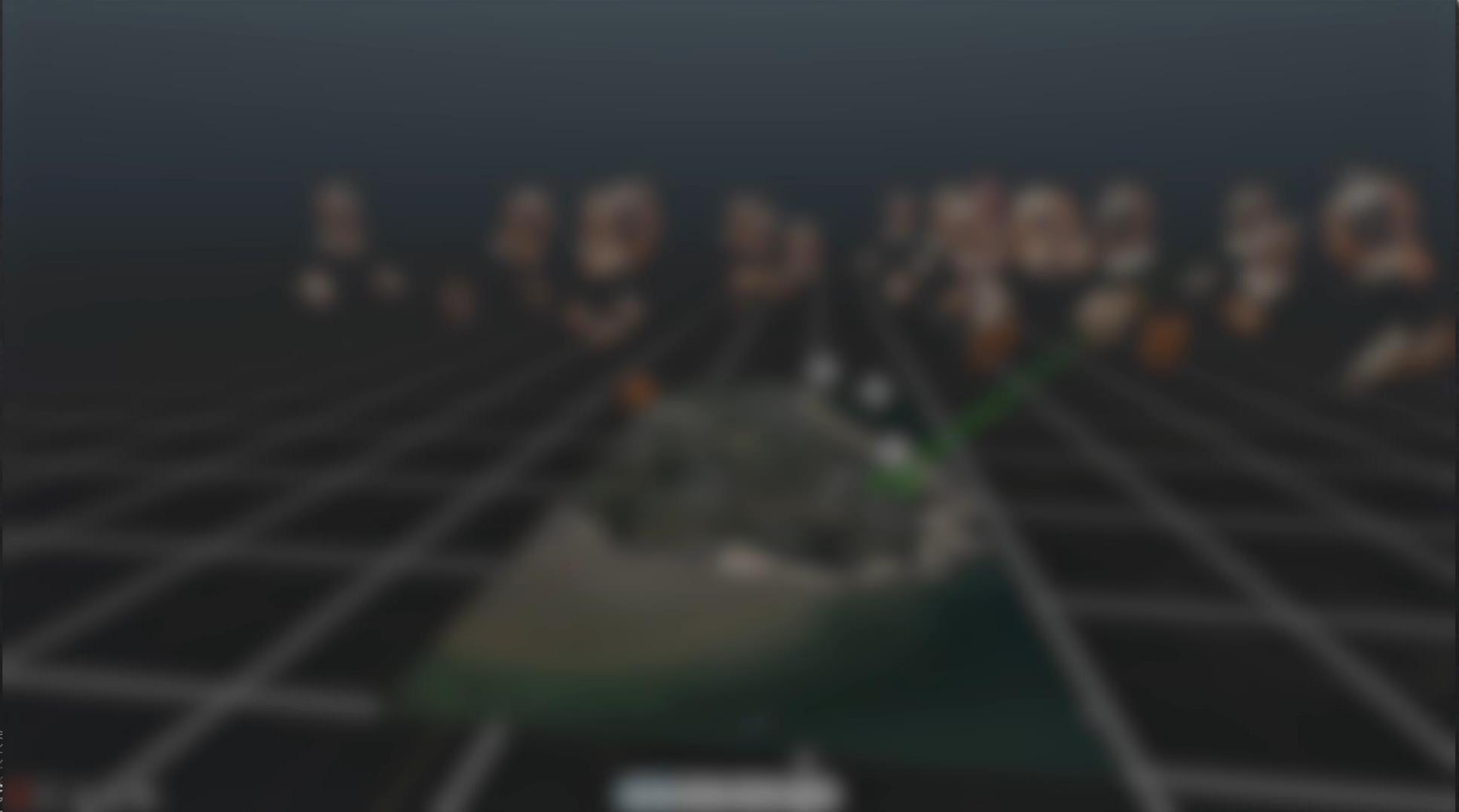


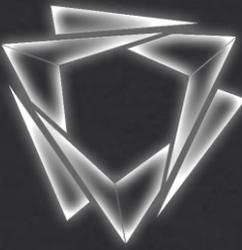
# VRExplorer

# VR Explorer



VR2Planets





VR2Planets

# Workflow



[Example] All Terrains — Reduce

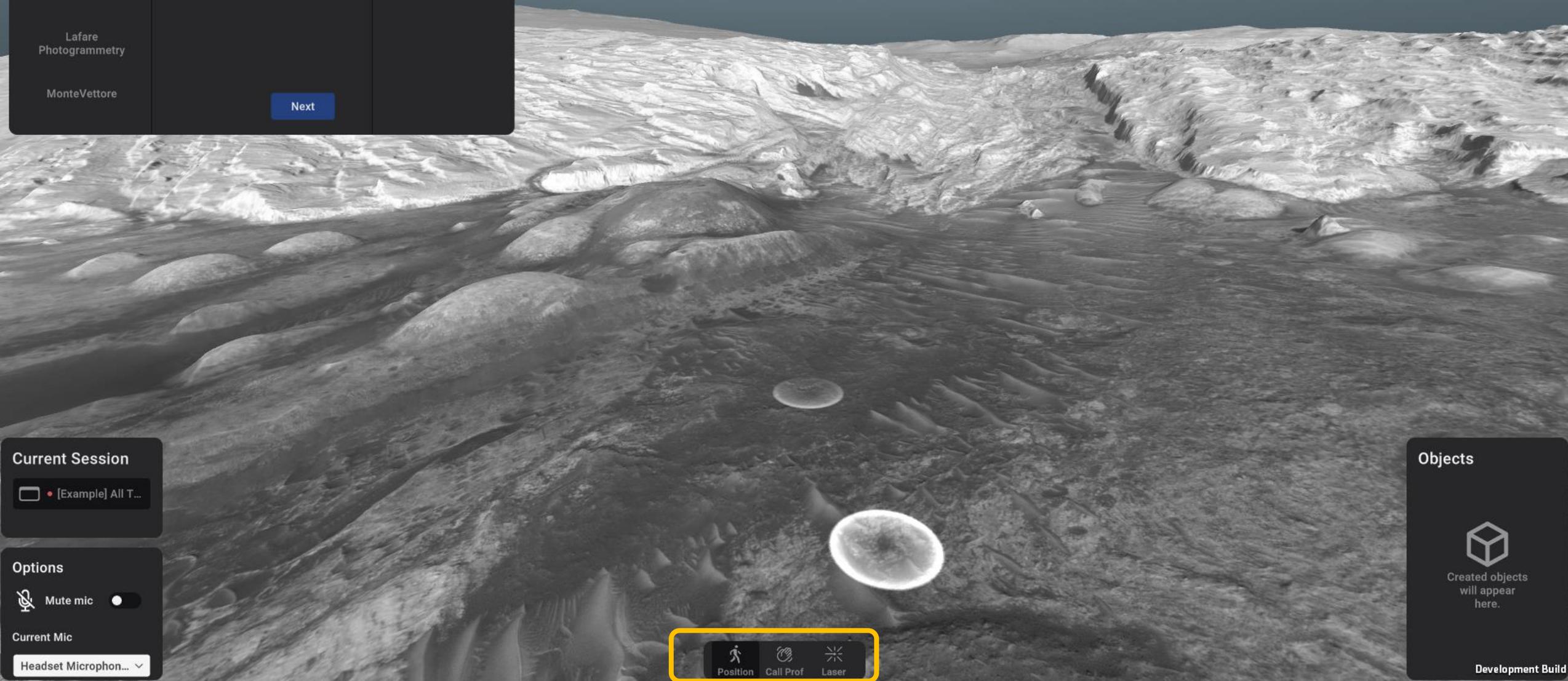
Slide	Visualization	Users Online
Gale		françois
Jezero		
Lafare		
Lafare Photogrammetry		
MonteVettore		

Next



### VR/3D client software

- Visualize virtual scenes
- Ease sharing online information in the virtual world
- Allow assessment session in VR



#### Current Session

 • [Example] All T...

#### Options

 Mute mic

Current Mic

Headset Microphon... ▾

Position Call Prof Laser

#### Objects



Created objects will appear here.

Development Build

[Example] All Terrains — Reduce

Slide

- Lafare Photogrammetry
- MonteVettore
- MonteVettore FarField
- MonteVettore Cum Scrap
- OrgonLagnes
- Lagnes**
- FalaiseBeauregard
- Copy of Jezero

Visualization

Users Online

admin → 👁

Next



### VR/3D client software

- Visualize virtual scenes
- Ease sharing online information in the virtual world
- Allow assessment session in VR



Menu

- Slide Deck >
- [Example] All T...
- Options >

Mode

Cours **TP** Exam

Slide Deck

- [Example] All Terrains
- [Example] Jezero Crater - Course
- [Example] Jezero Crater - Evaluation
- [Example] Jezero Crater - Interactive C...

Position Move Edit

Point Line Polygon Distance Angle Plane Clinometer Compass Position

Laser Reset

Objects



Created objects will appear here.

Development Build



Introduction

Origine du nom

Géographie et géologie

Mars 2020

France

Slides

Activity

Objects

Options

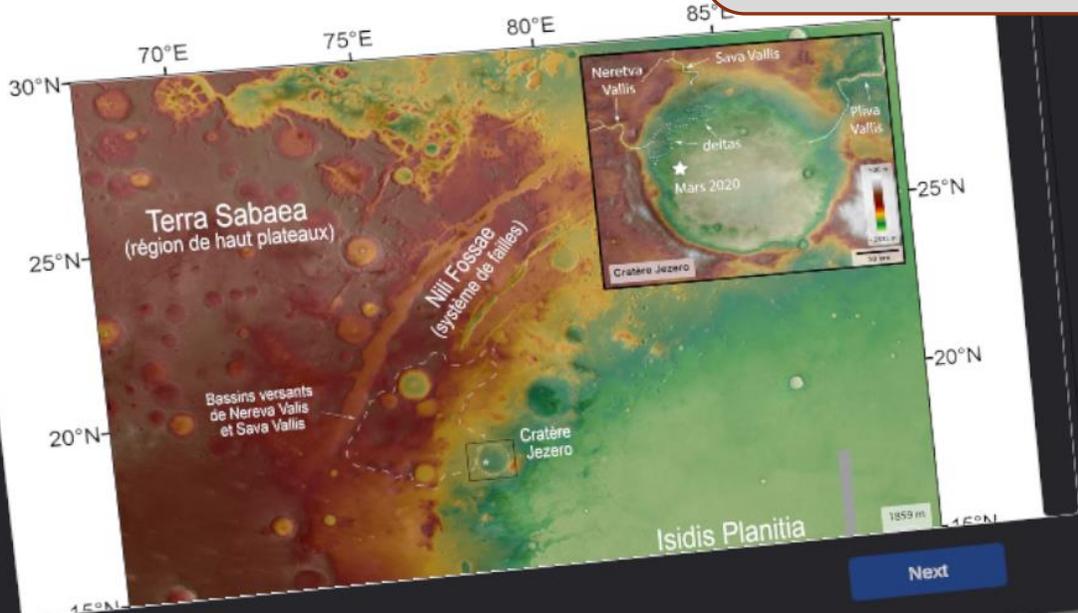
Screenshots

Ce cratère avait été, dans un premier temps, sélectionné pour le Mars Science Laboratory, mais a finalement été écarté au profit d'autres lieux plus propices avant d'être rapidement écarté au profit d'autres lieux plus propices, commencer par le site voisin de Nili Fossae.



## VR/3D client software

- Visualize virtual scenes
- Ease sharing online information in the virtual world
- Allow assessment session in VR



VR/3D client software interface controls:

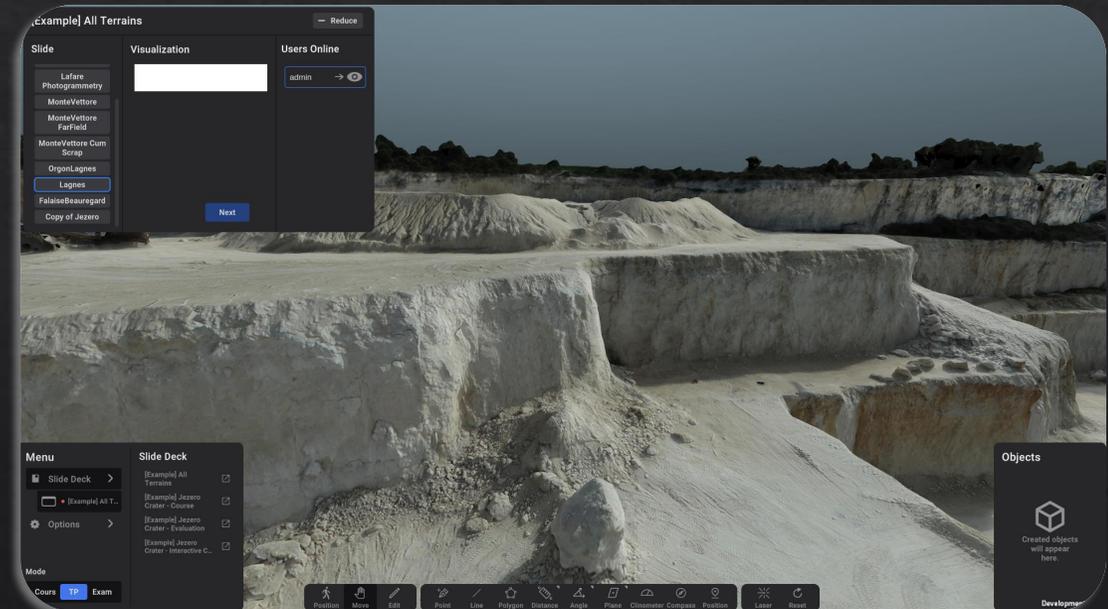
- Move (hand icon)
- Edit (pencil icon)
- Point (arrow icon)
- Line (line icon)
- Polygon (polygon icon)
- Distance (ruler icon)
- Angle (angle icon)
- Plane (plane icon)
- Clinometer (clinometer icon)
- Compass (compass icon)
- Position (location pin icon)
- Photo (camera icon)
- Laser (laser icon)
- Reset (refresh icon)

2D Debug

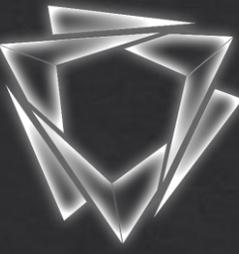
Planets

# On y gagne quoi?

- ◆ Gain en **productivité** grâce à une visualisation efficiente
- ◆ **Visualisation** ET **partage** de jumeaux numériques de terrains réels
- ◆ Expérience **immersive** (3D/VR) et **collaborative**
- ◆ Planification/préparation d'opérations sur le terrain
- ◆ Navigation/orientation
- ◆ Formation/pédagogie
- ◆ Extraction de données quantifiées géoréférencées



# VARIA



VR2Planets

