

#### Welcome to the Vulcano Excursion 2022

12th June - 24th June 2022

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http://jub.maps.arcgis.com/apps/webappviewer3d/index.html? id=9a2096d361764f939b9c50cfe61e65fc

http://www.volcano.si.edu/Photos/full/015041.jpg

#### 6th Vulcano Summer School 2022

A natural laboratory for marine, terrestrial - planetary science and technology

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Supported by ARCHES



### Outline

- Introduction
  - Vulcano Geology
  - Why Vulcano ?
- Objectives



- Setup and Organisation
- Examples of Methods and Techniques adopted
- Achievements, Conclusions and Future Work





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#### Local Geology, Sediment Transport







#### Objectives

- Bring together researchers, engineers, science managers, graduate and postgraduate students
- Build networks, broaden horizons, encourage communication, build bridges, provide opportunities to learn new techniques, use new tools
- Aspects of Planetary Sciences, Remote Sensing, Geology, Geophysics, Oceanography, and Robotics
   From the depth of the oceans to the planets and stars



# How was this achieved in the past?

- Summer Camps ~ 2 weeks, early June in Vulcano, 2015 - 2019
- Introduction to tools and methods: Field activities in oceanography, robotics, geophysics and remote sensing
- Individual or group training, lectures in methods
- Introduction to field data collection, data processing, analysis and interpretation
- GIS and data management strategies





# Overview of tools / methods

- Magnetic (gradiometer & marine magnetometer)
- Drones (Photogrammetry, Spectrometry)
- Geodetic Surveying Kinematic GPS
- Seismics (Passive, active refraction)
- Gravity
- Acoustics (echosounder, sidescan sonar)
- Ground Probing Radar
- CTD, ADCP
- Sampling (Water, Sediment)
- Underwater ROV

- Rover (Marine, Terrestrial)
- CO2, Ph sensor
- LISTT
- Drop camera (Cement Casing)
- Telescope (Astronomy)
- Infra Red Camera
- Research Vessel



Equipment Transport 2017





#### (Past) Achievements

- 5 field campaigns / Summer Schools; expertise, experience, data
- > 150 participants; building people networks
- Positive and Constructive feedback used to further fine tune the summer school.
- Extensive Database of data gathered
- Successfully provided insights from Oceans to Planets and methods from Oceanography, Geophysics, Geology to Planetary Sciences
- Addon: 2 x BSc thesis, GeoBremen 2017, LPSC, presentations, manuscripts in preparation





### What NEXT ?

- Vulcano SUMMER
  School 2022
- Limited Funding support from <u>ARCHES</u> !!
- Lots of new, exciting topics, instruments and people (BSc, MSc, PhD, post docs, (more) senior researchers, academics / engineers / technicians

## Why Vulcano ?

- Excellent Moon and Mars Analogue sites, (dry, little vegetation, boulder and grain size distribution)
- Varied magmatic and other geomorphic terrains, active volcanism (Etna, Stromboli, fumeroles), seismic activity
- Ocean (deep) environments, CO2 vents
- Logistics (easy access, short travel times to field sites, good weather / nice food)
- Participation Research Project +
  FUNDING !







Volcanoclastics



# What can **you** hope to learn / gain ..

- (Field) Experience, contacts and networking
- Broad spectrum of field techniques (marine and terrestrial methods)
- **Research** methodology collection of data, analysis and interpretation of data
- Specialisation Themes / Topics:
  - Oceanography, Geophysics, Remote Sensing, GIS, and Geology
  - Planetary Analogues and bits of Astronomy





#### **2019 Excursion Themes & Instructors**

- LIPS (Susanne + Kristin)
- Astrobiology + Raman (Mikhail + JP)
- Spectroscopy UV + VIS (Kathrin)
- IPS + IR + pyrometer + Asgard (Patrick + Christian + DFKI)
- Geoelectrics (Freiberg Group)
- Marine Robotics (Szygmon, Francesco)
- Oceanography (Laurenz)
- Astronomy (telescope with Frank; after dinner program)
- Drone and other geophysics (Vikram, Frank et al)

and others that might develop Vulcano 2022 - prep meetings - 1



## Idealised daily plan

- 08:00 meeting in the reception; daily plan, overview, any chances
- 09:00 12:00 Field-work 1
- 13:00 14:00 Lecture I will setup a lecture schedule -
- 14:00 18:00 Field-work 2
- 18:00 22:00 Dinner, data processing, instrument preparation, discussion of possible plans for the next day
- 22:00 24:00 Star gazing with Frank



### **Excursion Dates**

- Departure: Sunday 12th June
- Return: Thursday 24th June

#### DISCLAIMER: These dates MAY change due to reasons beyond our control e.g. travel, COVID etc

Two introductory meetings - early April and mid May

- With details on:
  - travel, organisation and planning
  - excursion background
  - geological introduction Vulcano
  - project topics Vulcano 2022 prep meetings 1



#### "Thank You for the unforgettable experience in Vulcano!"



