ETH zürich

ASL ASTROwoche #49

3. – 8. January 2022 at Diavolezza

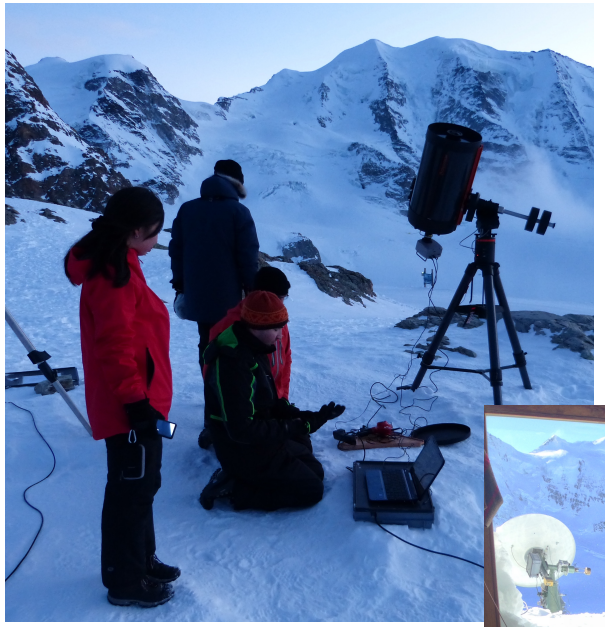
IPA

Goal and outlook of today

- General Introduction
  - Organisation
  - Location
  - Costs
  - Preparations
  - Afterwork
- Presentation of the experiments
- Groups building

Astrowoche in a nutshell

- Part of Physikpraktikum 3 (ASL)
- 1 intensive week in the mountains doing astronomical experiments
  - + preparatory work like proposal writing, dry runs
  - + reporting afterwards
- 5-7 experiments, 3-5 optical, 2 radio
- You work in a team of ~4 persons
- You deliver a presentation during Astrowoche and a report as a team
- If successful, 2 ”VP”-Points awarded



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Organisation


Adrian Glauser


Beatrice


Adrian Gheorghe


Gabriele

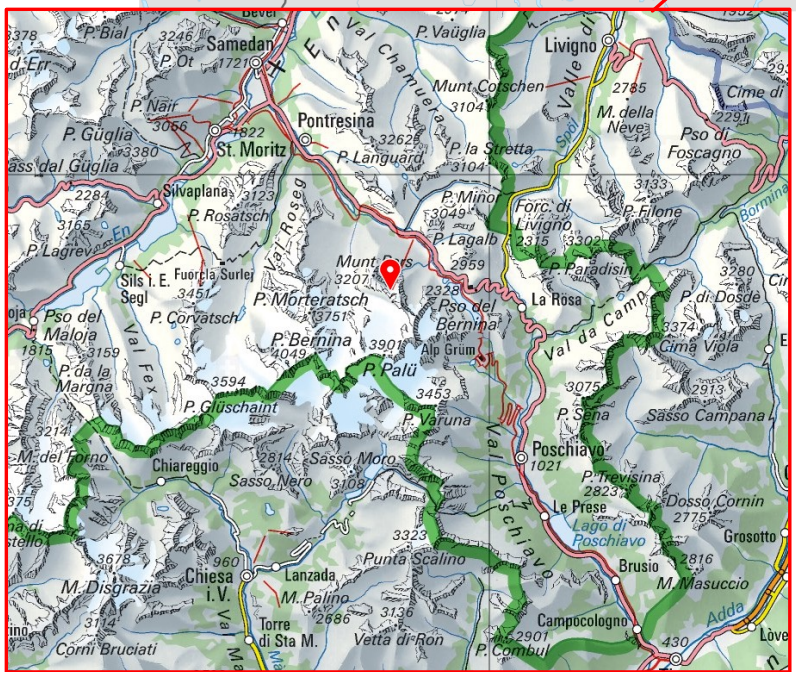

Polychronis


Jie

Adrian Glauser	Astrowoche Management
Polychronis Patapis	OPT1 – Stellar Variability
Beatrice Moser	OPT2 – Morphology of Galaxies
Gabriele Cugno	OPT3 – Stellar Spectroscopy
Jie Ma	RAD4 – 21cm Galactic Map
Adrian Gheorghe	RAD5 – Radio Interferometry

IPA

Location: Diavolezza 2978 m asl



Safety

- ETH disclaims liability, insurance is on your own business.
- Everybody has to fill in and sign a safety document.

Location: Diavolezza 2978 m asl

- High altitude sickness (headache, blood circulation issue, ...)
  ➔ drink a lot but never water from the tap!!!
- Pretty cold (-10°C …. -28°C), warm clothing is a MUST
- Very important sun-protection (sun-glasses and suntan lotion and lipstick)
- Never go out barefooted, may lead to several months of pain
- Be aware of electrostatic discharges (PC, Notebook) due to dry air
- Night: Torch or smartphone with red filter, 2 pair of gloves, scarf, cap etc.
- We are far away from civilisation (no nearby Coop/ Migros/ Aldi/ etc.)
- Cell phone reception, but interferes with radio-astronomers among you
- WiFi available in restaurant, but very limited bandwidth

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Covid-19 – key measures and risk for Astrowoche

- General rules of ETH and Diavolezza apply:
  - Covid-Certification required
  - Wearing masks inside the building unless you are seating and eating.
    - Please bring enough masks with you, we do not provide any
  - General hygiene measures apply (hand disinfection, keeping distance where possible)
- For field excursions special (ETH) rules apply:
  - For vaccinated or recovered people (2G), no restrictions apply
  - Anyone else, only up to 4 people allowed in the same dormitory
  - Consequently, we require the information from you if you comply to 2G at the time of Astrowoche in order to plan the dormitory assignment
- As usual, things can change, we keep you updated

Location Diavolezza (fun part)

- Snowboarding, ski-touring und skiing possible
  - Check-out diavolezza webpage for early deals (up to 30%)
- Ice climbing
- Highest outdoor Jacuzzi in Europe
- Short walks possible → requires good shoes

Costs

- 80.- /night in dormitory including half board → >400.- / week
  - ETH overs >250.- per student
  - The rest of **150.- has to be paid by each student in cash** to me on the mountain
  - There is no ATM on the mountain!
- Lunch is not covered
  - Help yourself with lunch and midnight-snacks, however self cooking (and smoking) in the dormitories is not allowed.
  - Restaurant and Kiosk open all day until dinner.
- Tickets for train + cable car to be covered by students

Travel to Diavolezza

- Private cars have to be parked behind the rail-way station (extra area)
- Officially: Get a cable car ticket and bring your stuff to Diavolezza 39.00 SFr.
- Unofficially: Hotel guests usually are free of charge, ask at the counter
- GA and REKA will not be accepted, credit cards are accepted.
- Arrival individually, ideally by public transport
- Meeting at Diavolezza in restaurant: **Monday 03.01.2022, 16.00 CET**

IPA

Experiments + Equipment

Experiment	Assistant	Equipment
OPT1 – Stellar Variability	Polychronis Patapis	C14, CCD SBIG
OPT2 – Morphology of Galaxies	Beatrice Moser	C14, CCD SBIG
OPT3 – Stellar Spectroscopy	Gabriele Cugno	C8/C14, Spectrometer + CCD
RAD4 – 21cm Galactic Map	Jie Ma	1m Radio Dish
RAD5 – Radio Interferometry	Adrian Gheorghe	Radio Interferometer
OPT6 – Mass of Jupiter	TBD	C8, CCD/Canon EOS

New Equipment

Upgraded equipment

New experiment

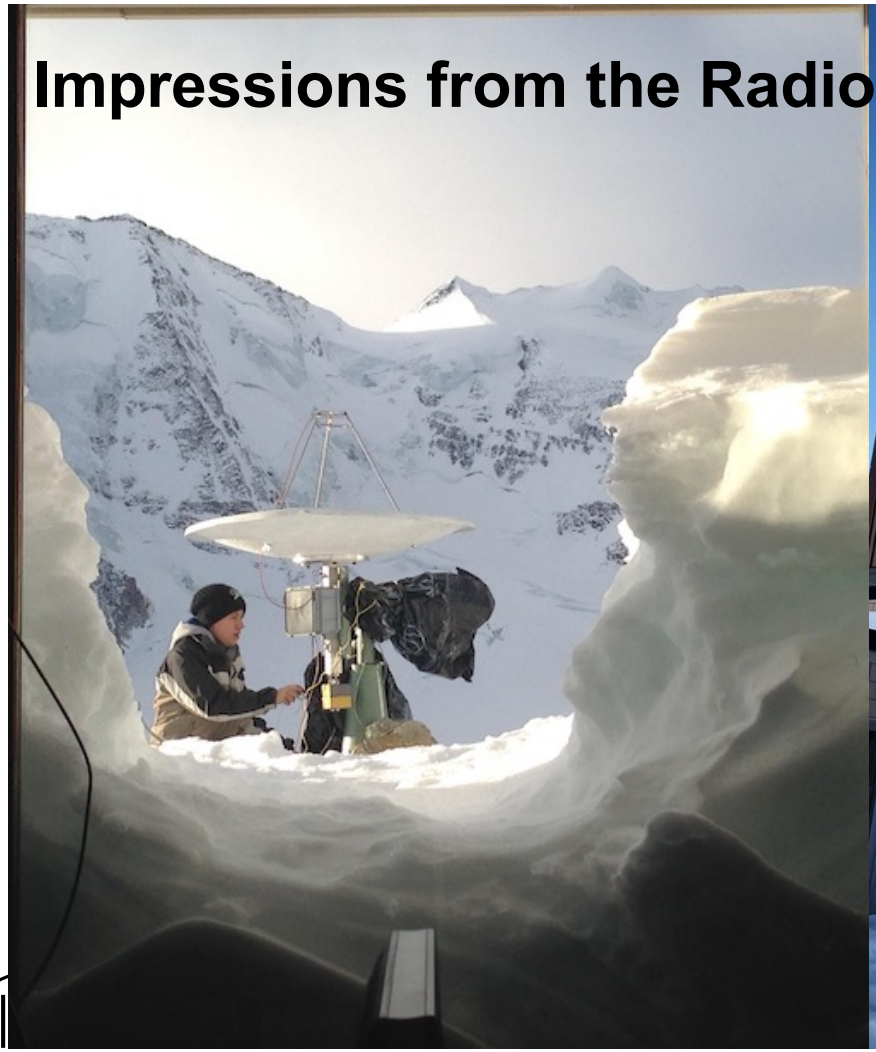
Upgraded equipment

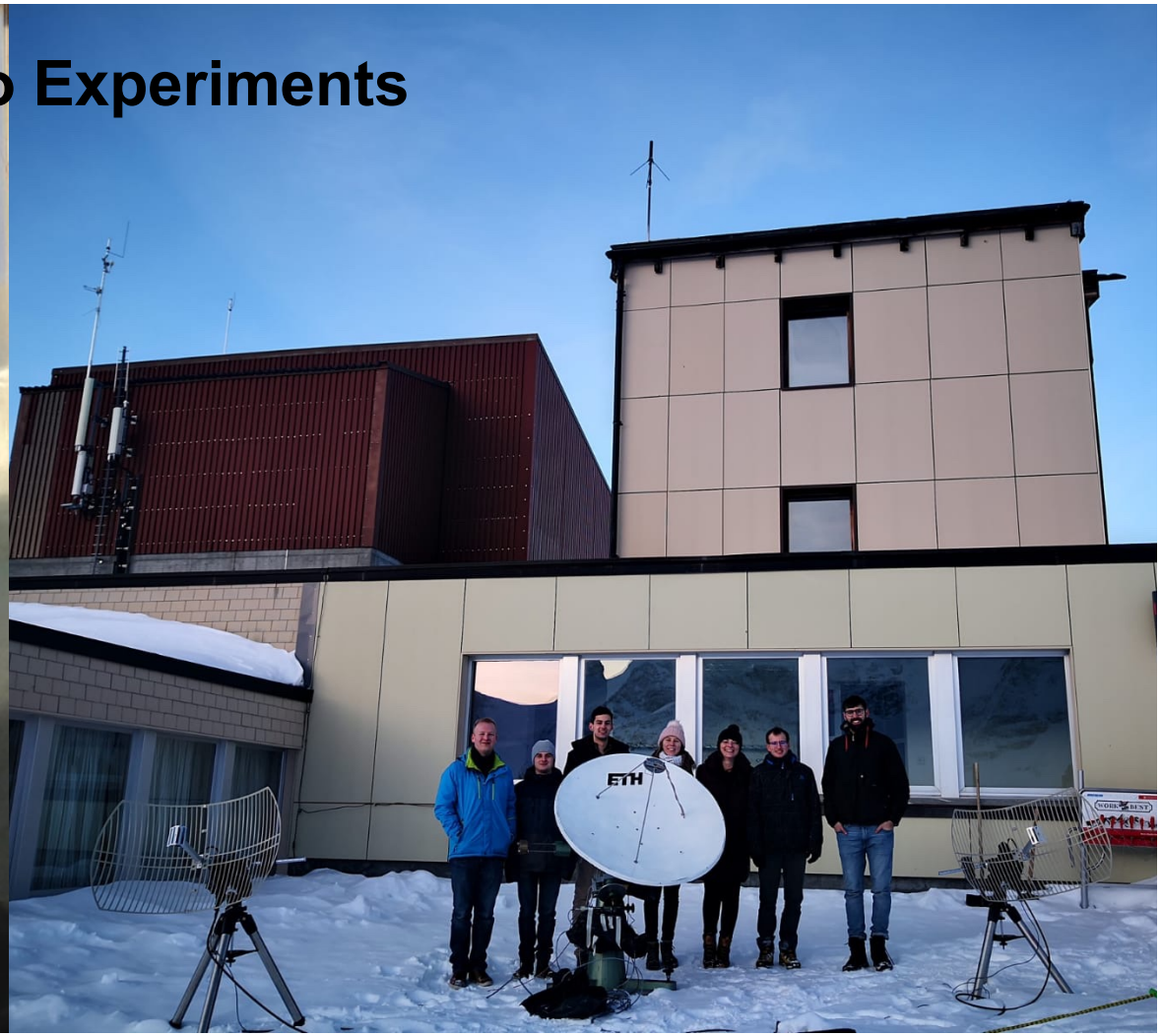
- Sun telescope CORONADO for demonstrations during the day
- Option: You may provide your own instruments in consultation with your assistant
- And: We will get new equipment for testing and using

IPA

Impressions from the optical experiments

Impressions from the Radio Experiments





Preparations

- Decide on experiment
- Think about what do I want, what do I need, when (schedule), how, imaging, or spectrum, feasibility, radio, optical (Night or day or day&night). Explore emergency program in case of…
- Write proposal and provide it (as pdf, ≤ 5 pages) to your TA and to Adrian not later than 30.10.2021
- Iterations and final acceptance until 5.11.2021
- Dry exercise ~ ½ Tag from November until mid of December.
  - Each group has to set up their instrument at least once inside or on top of HPP.
  - Goal: everyone knows the components and sub-units of his/her instrument and is able to install it in the cold dark on the mountain
- Btw., a 'good' proposal is quite a substantial contribution to the final report

Proposal

Title
please NOT just 'Astrowoche', choose a more meaningful title

Participants of the group
Given name, family name und mail. Group-leader on top and mention your assistants name too

Abstract
Brief introduction

Scientific goal
Describe your goal of observations and analysis

Observation plan
Detailed plan; objects with coordinates and time (declination, right ascension and/or galactic coordinates, brightness or flux or temperature; set priorities taking into account bad weather)
Prepare alternatives (due to bad weather or broken instrument).
Define your time either UT or local time, although we prefer UT

Instruments
Hardware needed, e.g.. spectrograph, filter, camera type, radio telescope, interferometer, ...
Plan regarding software and data analysis and processes

IPA

Presentation & Report

- During Astrowoche you have to maintain a logbook following VP-regulations
- We suggest to use your own notebook with software prepared (slow internet up there).
- We expect that you analyse your data already at Diavolezza using tools like:
  - Python, IDL, etc.
- Friday evening 8.01.2022: presentation of your experiment, first results
- Report in English according VP rules, one report per team
- Due date 25.02.2022 for final iteration with assistants
- Final report to be sent as pdf to your assistant and to me until 31.03.2022
- If accepted: 2 credit points via VP

Presentation of experiments

Please sign in to your experiments

TA	Experiments
Polychronis Patapis	OPT1 – Stellar Variability
Beatrice Moser	OPT2 – Morphology of Galaxies
Gabriele Cugno	OPT3 – Stellar Spectroscopy
Jie Ma	RAD4 – 21cm Galactic Map
Adrian Gheorghe	RAD5 – Radio Interferometry
TBD	OPT6 – Mass of Jupiter/ Astrophotography of Nebulae

- Talk to the TAs
- Join me so that I can enter your choice
- Indicate dietary restrictions