The High Alpine Research Station Jungfraujoch
- Origin, History, and Future

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Jungfraujoch – Top of Europe since 1912

Jungfrau Railways
The International Foundation
High Altitude Research Stations
Jungfraujoch and Gornergrat
HFSJG

• was founded in 1930
• supports research which requires high altitude and/or high alpine environment
• office/management in Bern
The International Foundation
HFSJG

• Present Member Countries
  – Belgium, Germany, UK, Austria, Switzerland

• Switzerland represented by
  – Swiss Academy of Sciences, Jungfrau Railways,
    Gornergrat Railways, Burgergemeinde Zermatt,
    University of Bern

• Funding
  – Swiss National Science Foundation
  – annual contributions and redemptions

• URL: http://www.hfsjg.ch
Jungfraujoch
3500 m
Top of Europe
Restaurant

Sphinx
Observatory
1937
Research Station
1931
Why is Jungfraujoch a unique research site?
Highlights of Past Research I

• 1950 - Université de Liège: Solar Spectroscopy
  Migeotte, Neven, Swensson:
  Solar Atlas 2.8-23.7µm
  Delbouille, Roland, Neven:
  Solar Atlas 0.3 - 1 µm

• < 1948, 1951
  Blackett, Wilson & Powell
  (also at Pic du Midi, France)
  Cosmic Ray Research ⇒ 2 Nobel Prizes
Highlights of Past & Present Research II

- **1962** Labs & Neckel: first absolute measurements of the solar constant
- **1963-1964** Observatoire de Genève (Golay): 7-color photometry, catalog of > 40’000 stars
- **1982** University of Bern (Debrunner & Flückiger): first identification of solar neutrons near Earth
- **1990** Blumthaler & Ambach: increase of UV-radiation
- **-2006** several research groups: long-range datasets for more than 25 climatologically harmful atmospheric constituents
Use / Output
(2007)

• 36 teams
• 46 research projects,
  22 primarily based on automatic measurements around the clock.
• 47 refereed publications,
• 87 conference presentations / posters,
• 14 data publications and reports,
• 1 chapter in a book on photovoltaic, and
• 4 Ph.D. theses.
Use / Projects
(2007)

Research Projects at Jungfraujoch 2007
Total = 46

Working Days at Jungfraujoch

[Bar graph and pie chart showing the distribution of working days and research projects by country, with Switzerland having the highest percentage.]
Research Topics (Overview)

Forschungsbereiche
Present Research Areas

- Environment (AC, AP) 62%
- Meteorology, Climate, Glaciology 9%
- Medicine 9%
- Astrophysics 9%
- Others 11%
Jungfraujoch is a Key Station in a number of nationally and internationally coordinated research programs, e.g.

- GAW (Global Station)
- NDACC (Primary Site)
- UNEP
- EARLINET
- ENVINET
- FREETEX
- EUROTRAC-2
- AEROCARB
- ASRB
Future

- Environment
- Flexibility of Infrastructure
- Evaluation of scientific results
- Public outreach, support for early-career scientists
- Networks
Summary and Outlook

Due to its

- unique and coveted location,
- excellent infrastructure,
- year-round accessibility

the High Altitude Research Station Jungfraujoch

- has been playing an outstanding role in various fields of research during the last 75 years and has a bright perspective for the future
Thank you!

End