

Leibniz-Institut für Sonnenphysik (KIS)

GREGOR and VTT @ Solarnet

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Introduction

- In 2021 general difficult situation due to Covid-19 pandemic travel restrictions. At the begin of the year only limited maintenance and no assistant on site.
- GREGOR observations were only possible from Monday to Friday, which reduced the available number of observing days. Most observations were performed remotely with support from KIS on site-staff (Thanks).
- Situation improved from September on, but then already long planned GREGOR maintenance started in October
- In total 133 observing days (until now + planned for rest of the year), SOLARNET with 28 days.

GREGOR Status

- Dome membrane refurbished
- Primary mirror re-coated in October, improved alignment of telescope optics
- GREGOR Slow polarimeter modulator (IRSOL / KIS): first tests on site were successful.
- GRIS upgrade (IAC) started (two more channels 770nm + 854nm). Available from 2022B
- HiFI upgrade (AIP) started (6 wavelength channels, broad band and small band). Available 2022A

- VTT control system is very unstable and works not reliable
- Tried to improve with low success
- Entrance window has bad quality, investigations were done, but reason unclear. New window needed
- General a lack of maintenance because of reduced available resources (Covid, other projects)
- Plan established to refurbish VTT (entrance window, control system, AO, maintenance) until September 2022, but with uncertainties
- Resources and money needed

GREGOR (available instruments):

- GRIS spectro-polarimetry in near infrared (old configuration): $1.0\mu\text{m} - 2.3\mu\text{m}$, polarization $1-1.3\mu$ and $1.5-1.8\mu\text{m}$; slit-scanner ($64''\times 0.26''$ simultaneously, $64''\times 60''$ scanned) or IFU (FOV: $3''\times 6''$ simultaneously, $60''\times 60''$ scanned)
- BBI (broad band imager): two independent wavelength channels, 30fps, $59''\times 50''$, $0.023''/\text{pix}$
- HiFI/M-Lite: 6 fix spectral windows: G-Band (430.7nm , $71''\times 60''$, $0.027\text{arc}/\text{pix}$, 25fps), blue continuum (450.6nm , $71''\times 60''$, $0.049''/\text{pix}$, 25fps), narrow and broadband @ H-Halpha ($77''\times 61''$, 100fps), Ca-H (396.8 , $48''\times 31''$, $0.031''/\text{pix}$, 100fps) and TiO (705.7nm , $77''\times 61''$, $0.049''/\text{pix}$, 100fps)

2022A observation campaign April 4th until August 3rd, 2020. Available observation days depends if remote or on-site observations are possible (Covid-19 pandemic dependence). For 1st half year conservative planning, only remote observations and now weekends.

Perspective

GREGOR

- LEAP (KIS, Univ. Geneva, IRSOL, Univ. Stockholm): High resolution Spectro-polarimeter with FPI
- BBI upgrade (KIS), FOV 74"x 51", 0.023"/pix, 130fps.

VTT

- IBIS (INAF): High resolution Spectro-Polarimeter with FPI
- HELLRIDE (KIS,): Helioseismic Spectro-Polarimeter with FPI
- FaMuLUS (AIP): Spectrograph with fast cameras
- LARS (KIS): a laser-frequency reference comb for the measurement of line positions on an absolute wavelength scale.
- Supported observations from September 2022, but depending on status of refurbishments