

# 2nd SOLARNET Forum for telescopes and databases

Zoom-meeting  
2020-11-26



Stockholm  
University

Dan Kiselman

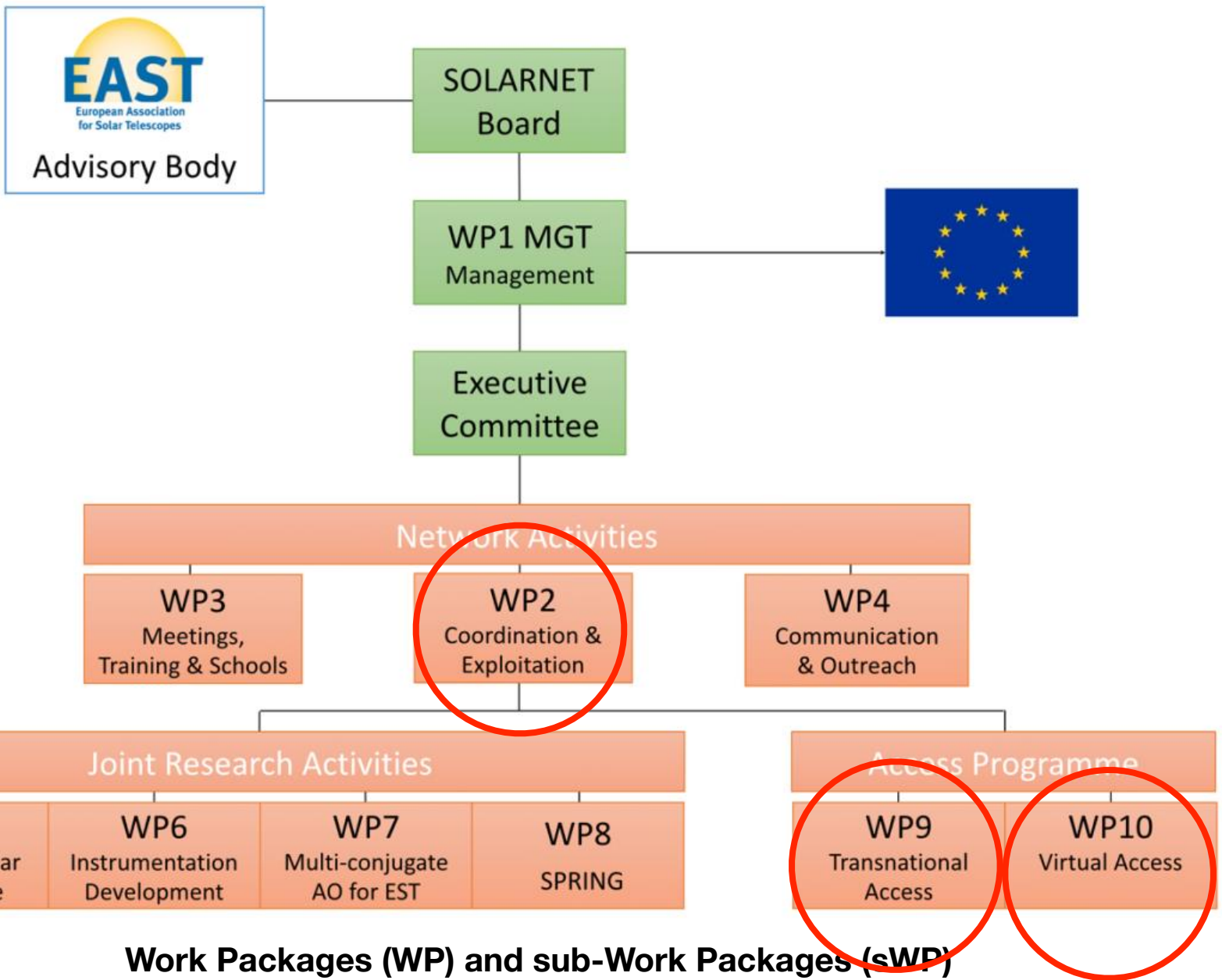
# What is SOLARNET?

This project aims at integrating the major European infrastructures in the field of high-resolution solar physics.

Total cost: 13.5 M€  
EU grant: 10 M€  
30% of that is for the  
Access programmes

**Coordinator**  
**KIS = Leibniz Institute for Solar**  
**Physics, Freiburg**

Participant No	Participant organisation name	Country
1 (Coordinator)	Kiepenheuer-Institut für Sonnenphysik (KIS)	Germany
2	Instituto de Astrofísica de Canarias (IAC)	Spain
3	Universitetet i Oslo (UiO)	Norway
4	Stockholms universitet (SU)	Sweden
5	Centre National de la Recherche Scientifique (CNRS)	France
6	Istituto Nazionale di Astrofisica (INAF)	Italy
7	Università Roma Tor Vergata (UNITOV)	Italy
8	Università Degli Studi di Catania (UNICT)	Italy
9	Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC-IAA)	Spain
10	Max-Planck-Gesellschaft zur Förderung der Wissenschaften eV (MPG)	Germany
11	Leibniz-Institut für Astrophysik Potsdam (AIP)	Germany
12	University of Northumbria at Newcastle (NU)	UK
13	University of Sheffield (USFD)	UK
14	University College London (UCL/MSSL)	UK
15	Queens University Belfast (QUB)	
16	Astronomický ústav AVCR vvi (ASU)	Czech Republic
17	Koninklijke Sterrenwacht van België (ORB)	Belgium
18	Hvar Observatory, Faculty of Geodesy, University of Zagreb (HVAR)	Croatia
19	Astronomical Institute, Slovak Academy of Sciences (AISAS)	Slovakia
20	Università della Svizzera italiana / Istituto Ricerche Solari Locarno (USI/IRSOL)	Switzerland
21	University of Graz (UNIGRAZ)	Austria
22	Skolkovo Institute of Science and Technology (SKOLTECH)	Russia
23	Aperio (Aperio)	UK
24	ALPAO (ALPAO)	France
25	The ScienceMedia Network GmbH (SMN)	Germany
26	Winlight Optics (WO)	France
27	National Astronomical Observatory of Japan (NAOJ)	Japan
28	Assoc. of Universities for Research in Astronomy/National Solar Observatory (AURA/NSO)	USA
29	University Corporation for Atmospheric Research (UCAR), High Altitude Observatory, National Center for Atmospheric Research (UCAR/HAO)	USA
30	Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung e.V. (IOSB)	Germany
31	A.D.S Internation SRL (ADS)	Italy
32	BDP Engineering/Opto Service (BDP E&M)	Italy
33	Universidad de Oviedo (Oviedo)	Spain
34	Durham University (Durham)	UK
35	Haute Ecole Spécialisée de Suisse Occidentale / Haute Ecole d'Ingénierie et de Gestion du Canton du Vaud (HES-SO)	Switzerland
36	Advanced Mechanical and Optical Systems SA (AMOS)	Belgium



**Work Packages (WP) and sub-Work Packages (sWP)  
 WP leaders, etc.  
 Deliverables and milestones!**

## 2nd SOLARNET Forum for telescopes and databases November 26, 2020, Zoom

Timezone = CET

10:00 Welcome

10:05 SOLARNET Access Programmes

**Trans-national Access programme** - Dan Kiselman (SU)

GREGOR&VTT - Thomas Berkefeld (KIS)

SST - Dan Kiselman (SU)

THEMIS - Bernard Gelly (CNRS)

SUNRISE 3 - Andreas Lagg (MPS)

Piz Daint - Oskar Steiner (KIS & USI/IRSOL)

**Virtual Access programme** - Mats Carlsson (UiO)

Hinode SDC - Mats Carlsson (UiO)

BE-WISSDOM - Robbe Vansintjan (ORB)

Stockholm SST Archive - Mats Löfdahl (SU)

IBIS-A - Ilaria Ermolli (INAF)

GRIS Data Archive - Carl Schaffer (KIS)

*If there is time, one afternoon talk may be moved here.*

## **2nd SOLARNET Forum for telescopes and databases November 26, 2020, Zoom**

**Timezone** 13:30 Coordination and dissemination

**= CET**

- Coordination between ALMA and ground-based telescopes - Miroslav Barta (ASU)
- Service mode observations - Gregal Vissers (SU)
- Coordinated observations - Carsten Denker (AIP)
- Big-data storage - Nazaret Bello Gonzalez (KIS)
- Software inventory - Robertus Erdelyi (USFD)
- Metadata for observations - Stein Vidar Haugan (UiO)
- Metadata for simulations - Stein Vidar Haugan (UiO)

15:30 End of Forum

# What is a TRANS-NATIONAL ACCESS PROGRAMME?

- Open research infrastructures to researchers from other countries.
- Infrastructures get paid.
- Travel for researchers to the facility.
- In our case:  
2 researchers,  
administered by the  
SOLARNET Project Office.





# Ground-based telescopes

**GREGOR**



SOLARNET  
Trans-national Access Programme

**VTT**



**THEMIS**



**SST**



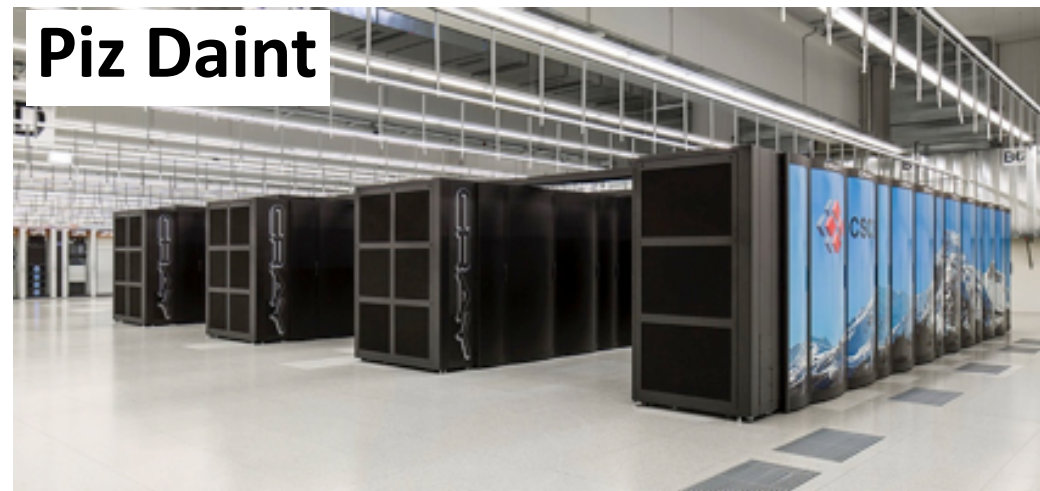


# Balloon-borne telescope



**SOLARNET**  
Trans-national Access Programme

# Supercomputer



## Awarding of time and coordination of the TNA.

EAST = European Association for Solar Telescopes 

The EAST logo features the letters "EAST" in a bold, blue, sans-serif font, with a stylized yellow sun and blue arc graphic to its right.

### EAST TAC

Dan Kiselman (SU): SST, chair

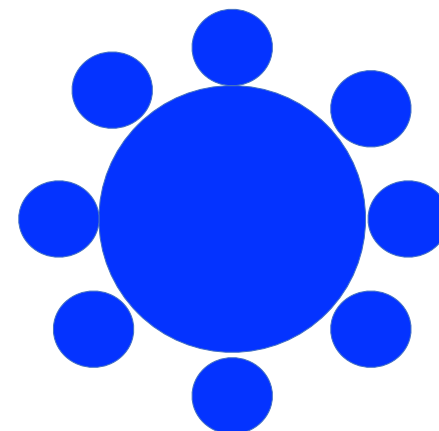
Bernard Gelly (CNRS): THEMIS

Catherine Fischer (KIS): GREGOR, VTT

Elena Khomenko (IAC): Spanish TAC

Andreas Lagg (MPG): SUNRISE

Oskar Steiner (USI/IRSOL & KIS): Piz Daint supercomputer



Distributes Access time in SOLARNET and also ITP for GREGOR, THEMIS, VTT.

Two external scientific referees for every call.

Time awarded on scientific merit, but priority to users who:

- have not previously used the installation.
- are working in countries where no equivalent research infrastructure exist.

Calls for SOLARNET TNA		Deadline	Oversubscription	
2019 (A)	GREGOR, VTT, SST, THEMIS	20 Jan 2019	3.2	18 proposals, 8 accepted
2019 B	GREGOR, VTT	2 Jun 2019	1.7	5 proposals, 3 accepted
2019 PD	Piz Daint	24 Oct 2019	0.75	5 preproposals => 2 full proposals, all accepted
2020	SST, THEMIS	20 Jan 2020	1.4	5 proposals, 5 accepted – 4 executed in service mode, 1 not
2020 A	GREGOR (science verification), VTT	19 Apr 2020	0.33	1 VTT proposal accepted – observations could not be made in 2020.
2020 B	GREGOR, VTT	19 Sep 2020	0.5	1 GREGOR proposal accepted.
2020 PD	Piz Daint	31 May/30 Sep 2020		Being processed...

# Gleanings from statistics and questionnaires

Questionnaire: Users generally content, but don't understand that they wouldn't have got access otherwise and how expensive the time is.

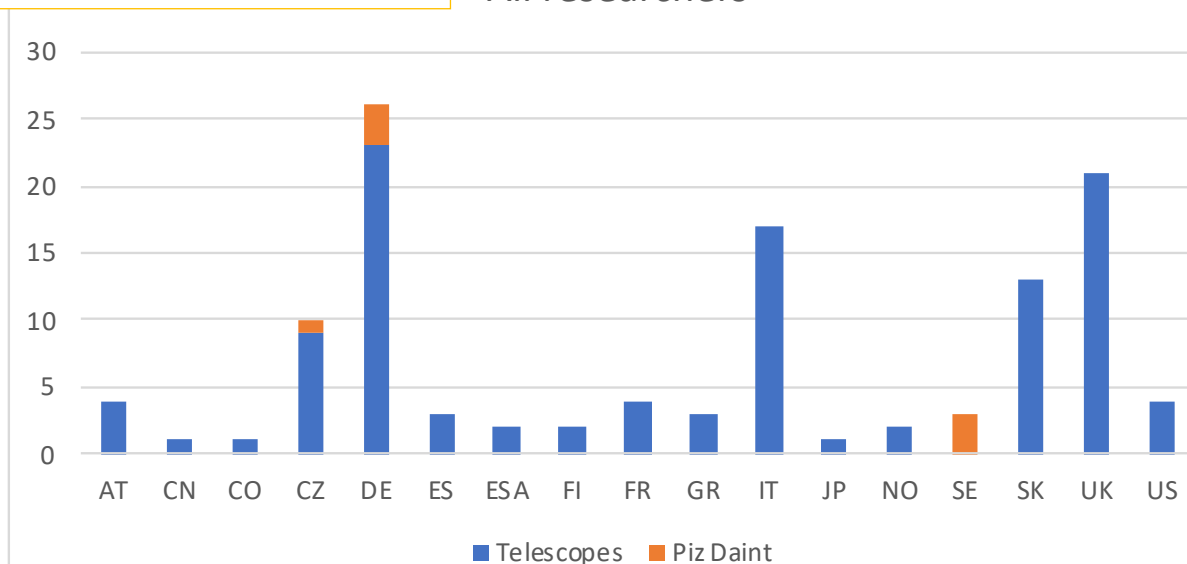
Piz Daint demanding to use.

Female/Male fraction for PI's of accepted proposals = 40%/60%.  
For all proposals = 35%/65%

All accepted projects were within the field of solar physics, except the one for THEMIS which was on the planet Mercury.

Many nationalities

All researchers



# Nationality rules

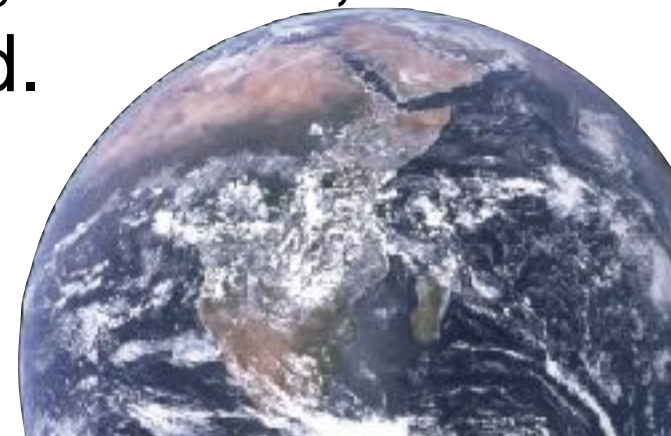
- The PI and at least half of the Co-I's must be from an EU or associated country (including UK) *except* for the country of the facility.

	"Excluded" countries
GREGOR & VTT	DE, ES
THEMIS	FR, ES
SST	SE, ES
SUNRISE 3	DE
Piz Daint	CH



# Non-associated third countries

- Allowed up to a limit of 20%.
- Our plan, after it has become clear that UK is still "associated", is to allow 20% for the ground-based telescopes, jointly.
- 2021 calls for GREGOR, SST, THEMIS, VTT will thus be open to the world.



# Important!



- Access recipients must **acknowledge** SOLARNET in their publications (also talks!).
- Do report *all* publications (and talks!) to `SOLARNET-office@leibniz-kis.de`
- Data will be public after one year.
- Also simulation data.

<https://solarnet-project.eu/Acknowledgement-SOLARNET-EU-funding>



# Coming calls

- Soon: GREGOR & VTT, SST, THEMIS, deadline  $\geq 20$  January. [Common application form?](#) [Coordination?](#)
- April?: Piz Daint. Computations to start in 2022.
- June?: GREGOR & VTT 2020B
- Sunrise 3: Not decided yet. Launch planned for 2022.

Timezone = CET

10:00 Welcome

10:05 SOLARNET Access Programmes

**Trans-national Access programme** - Dan Kiselman (SU) + others

Coming calls. Information about the facilities:

GREGOR&VTT - Thomas Berkefeld (KIS)

SST - Dan Kiselman (SU)

THEMIS - Bernard Gelly (CNRS)

SUNRISE 3 - Andreas Lagg (MPS)

Piz Daint - Oskar Steiner (KIS & USI/IRSOL)

**Virtual Access programme** - Mats Carlsson (UiO) + others

Information about the databases:

Hinode SDC

BE-WISSDOM

Stockholm SST Archive

IBIS-A

GRIS Data Archive

*If there is time one afternoon talk may be moved here.*

12:00 Break

# Swedish 1-m Solar Telescope

## SST

## La Palma

- 2002–
- Vacuum refractor
- No central obscuration
- Adaptive optics
- Diffraction limit 0.1" in the blue

Prefilters determine what lines are observable!

**CHROMIS**  
imaging spectrometry  
390 nm – 500 nm

**CRISP**  
imaging  
spectropolarimetry  
520 nm – 860 nm

**TRIPPEL**  
slit spectrograph





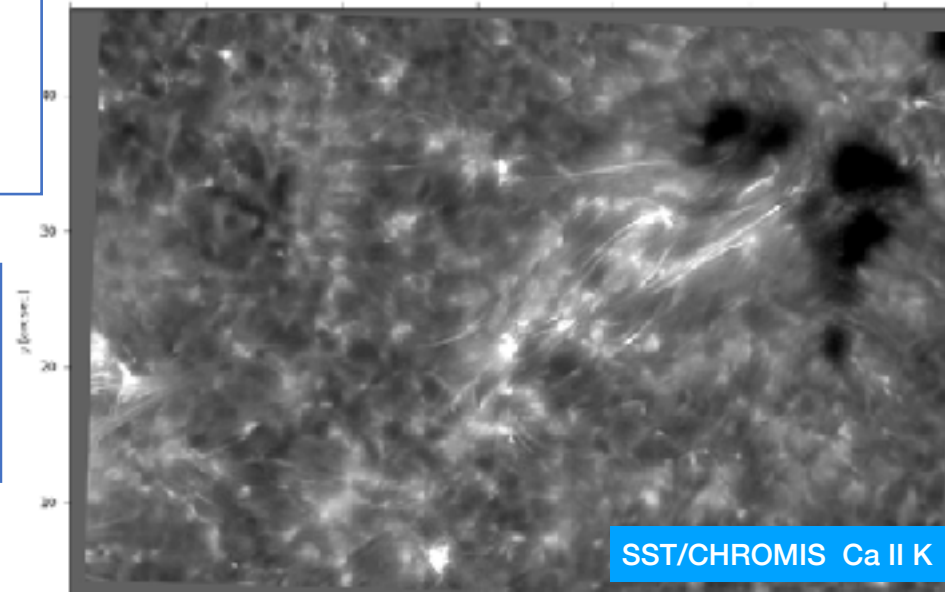
# SST in SOLARNET

**Mainly PI visitor mode:** 2 observers on site. Typically 10-d campaigns.

**Limited Service queue mode:** Telescope staff perform the observations given a list of projects.

In proposal state whether service mode is:

1. possible
2. impossible,
- 3 only possibility.



Reductions with standard pipelines & MOFBD included. PI will be provided with reduced data. Takes time!

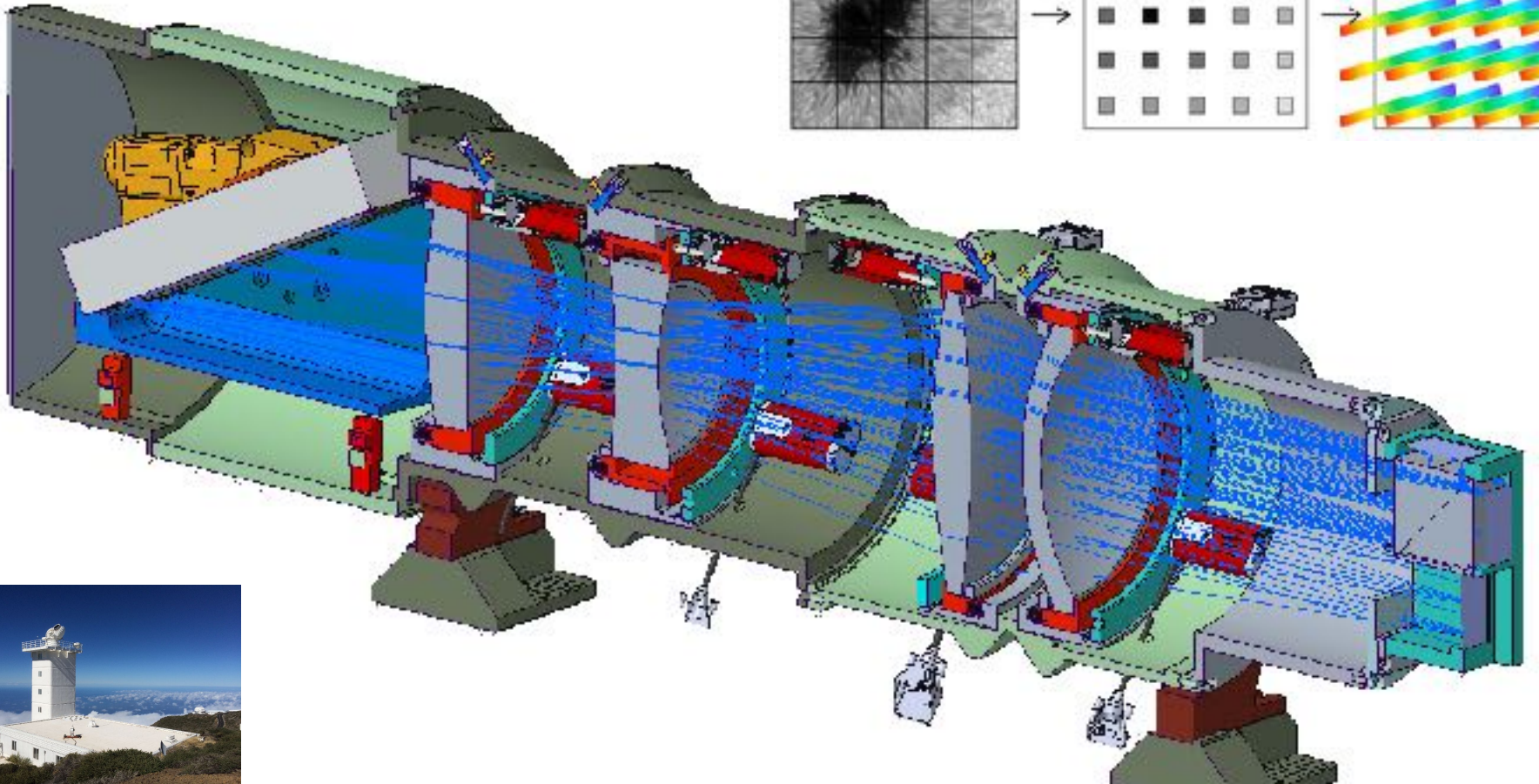
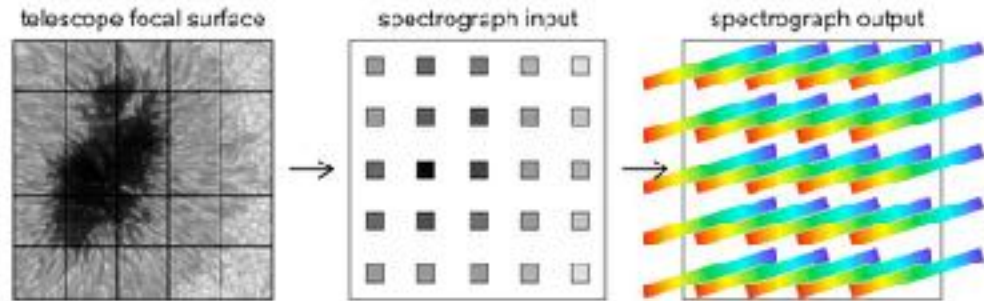


# HeSP

Hyperspectral polarimeter for He I 10830

128x128 ~ 16000 spectra

Common instrument  
at the SST in 2022?



# THEMIS instrumentation: past and future

Ø 90 cm Solar telescope, He filled, built 1996 (24), commissioned 1999

## Instrumentation until 2016

- Long slit spectrograph for multiline solar spectropolarimetry **MTR2 (continues)**, IPM (FP spectroimaging) **obsoleted 2009**, MSDP (Subtractive double-pass spectroimaging) **obsoleted 2016**, TipTilt (Image stabilisation) **replaced by AO**

## Instrumentation 2019 -> 2025

### ● Adaptive optics OBAO

- Expected Strehl ratio:  $\sim 0.35$  for  $r \approx 7$  cm
- Now closing the RT loop on granulation (dec 2020)

### ● MTR2 with:

- New polarimetric system, new field scanning system, new focal plane and cameras (3 simultaneous), spectral resolution  $10 \text{ mÅ@ } 580 \text{ nm}$  (1" slit), bandwidth 400 - 1100 nm, improved spatial resolution 0.11"

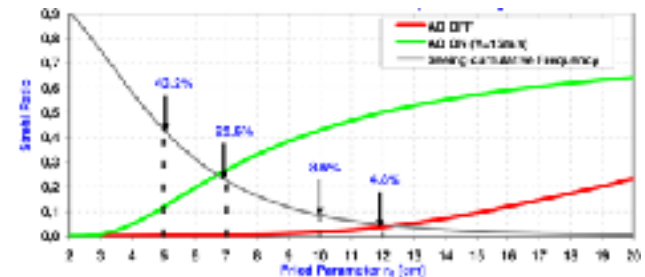
### ● Simultaneous broad band imaging

- G band context camera, other wavelengths possible.

### ● Integral Field Unit (IFU, with IAC participation) in the visible (2021 – 2023)

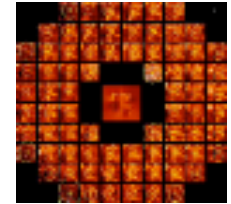
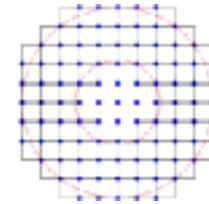
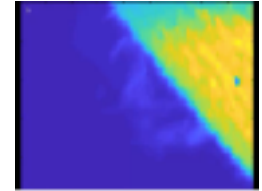
- Same principle than the one working at GREGOR

### ● Available "visitor port" (including AO) for visitor instrumentation.



# THEMIS instrumentation: 2021

- Working:
  - Context imaging, image restoration, spectrograph long slit field scanning
- In progress
  - Closing the AO loop on pinholes and solar granulation
- **TBD during 2021**
  - **Install and test the polarimetric analysis**



**THEMIS shall participate to the general SOLARNET Call for 2021, with complete transparency toward the potential applicants about possible unsolved limitations at the time of the campaign. We are planning a compact observing campaign with large technical observing sessions that may/may not produce science.**



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**Please forward your presentation to: [dan@astro.su.se](mailto:dan@astro.su.se) and  
the Project Office: [solarnet-office@leibniz-kis.de](mailto:solarnet-office@leibniz-kis.de)**