What is SciOps responsible for?

- Produce astronomical data of the highest quality
- Maintain (at minimum) & enhance (desired) instrument scientific capabilities:
  - science modes, performance, calibration plan
- Improve operational efficiency
  - Increase time available for science
  - Offer new operations capabilities
    - Designated VM (implemented)
    - Update of Phase 2 tools, jointly with USD (to come in 2016)
- “Educate” users community to VLT(-I) operational requirements
SciOps staffing

- **Astronomers**
  - 38 members
    - 12 fellows (all are instrument fellows)
      - plus 3 Garching fellows
    - 26 astronomers (most are instrument scientists)

- **Telescope Instrument Operators**
  - 24 members
    - 15 Night-TIOs (Operations of telescopes, instruments, calibration plan, quality control)
    - 9 Operation Specialists (OS) (tasks shared 50/50 between day & night support)

- **Secretary**
  - Tasks shared with MSE Dpt. (Maintenance, Support and Engineering) and Director’s Office
Paranal and its instruments

16 instruments in operations

SPHERE  FORS  KMOS  CRIRES  UVES  SINFONI  FLAMES  VIMOS  MUSE  VISIR  AMBER  NACO  HAWKI  PIONIER  VIRCAM + OMEGACAM  MIDI  XSHOOTER

PSO - 39th UC meeting. April 27-28, 2015
Paranal Instrument Operations

Highlights

- **MUSE** in operations since Oct. 2014 (P94)
  
  Visible [0.47-0.93\(\mu\)m] integral-field-spectrograph with 24 IFUs and 2 spatial modes (60"x60" and 7.5"x7.5"). R~3000.
  
  - Narrow field will be AO supported and come with integration into AOF (w/ AO module GALACSI, 4 LGS, DSM). First AOF integration activities started in P95

- **MUSE** is highly requested (124 props for P96) and highly efficient. UT4 ‘workhorse’
  
  - Already ~15 refereed papers
  - Successful SV & GTO
  - Detector vessel for channel 1 exchanged in 03/2015, solving contamination problem
Paranal Instrument Operations

- **Highlights**
  - **SPHERE** in operation since April 2015 (P95)
    - Spectro-Polarimetric High-contrast Exoplanet REsearch
    - 4 commissioning runs carried out in 2014
    - SV in Dec. 2014 (Leibundgut+), GTO started in March 2015
    - P95: service mode, GTO visitor mode.
      - Normal visitor mode pending final characterisation
      - Operations being streamlined
    - SAXO: extreme AO system (1377 actuator DM, Strehl~90% in H-band), coronagraphic-assisted.
  - Three instruments:
    - IFS: [0.9-1.7]μm integral-field spectrograph
    - IRDIS: [0.9-2.3]μm dual-band & -polarimetric imaging + long-slit spectroscopy
    - ZIMPOL: [0.6-0.9]μm imaging and differential polarimetry

- **References**
  - MWC 758, Benisty et al.
  - HR8799, Apai et al.
Paranal Instrument Operations

- **Highlights**
  - **VISIR** back in operation since April 2015 (P95)
  - VISIR = VLT imager and spectrometer for the mid-infrared [8-13;17-24 μm]
  - **Upgraded** to 1kX1k detector: 38”x38” with 0.045” pixel
    - Much better cosmetics, higher spatial resolution
    - Spectroscopy: LR (R~350), HR (R~25000)
      - **Efficiency improved factor ~6** (sensitivity + WL cover)
  - 3 commissioning runs in 2014/2015
    - Instrument operations are going well
    - Problems of telescope drift under investigation
  - Operations for P95 limited to service mode
    - P96 also VM
    - P96 **new modes**: coronography, burst mode
Highlights

- NACO moved to UT1
  - Recommissioning in September 2014 canceled due to Conica detector failure
  - Recommissioning January 2015 with ISAAC LW detector
  - Instrument modes reduced
  - Higher thermal detector noise, restricting feasibility of short WL programs

- Intervention March 2015
  - Reduction of thermal detector noise
    - H band still affected

- New intervention ongoing to recover camera wheel
  - NACO back on sky in 2nd week of May at earliest
Paranal Instrument Operations

- Highlights
  - **VLTI** out of operations during P95
    - VLTI lab being refurbished to prepare for installation of **Gravity** (AIV starts 2015) & **Matisse** (AIV starts 2016)
    - MIDI decommissioned in March 2015
    - PIONIER & AMBER offered in P96
    - Gravity activities starting in 2nd semester 2015
Paranal Instrument Operations

- LGS usage

![Graph showing LGS usage over time with categories for LGS science time used, LGS science time lost due to LGS technical problems, and bad weather months.](image-url)
Reminder about changes in Dpt.

- New function of System Scientists
  - Instruments, Operations, VLTI, Telescopes, AO
  - SciOps interface with MSE, within the LPO System Engineering group

- New staff category of “Operations Specialists”
  (senior TIOs w/ 50/50 split for day/night support)

- Night-astronomers available in the afternoon to support VAs & work on high-level tasks

- Structures in place to provide project support
  - Instrument & operations improvements
Closing the loop: 2 outlook items from last year’s presentation

- Extending deployment of Operations Specialist support in daytime
  - 3 more TIO positions converted to OS.
  - 9 OSs, covering daytime duties ~80% of the time
    - We keep ~20% coverage by Day Astronomers
Closing the loop: 2 outlook items from last year’s presentation

Integration of VLTI operations into new operations scheme

- Will require significant effort: operations are complex and will become more so with arrival of new instruments (Gravity, Matisse)
  1. Bring new instruments into operations
  2. Move VLTI operations towards SciOps 2 scheme

![Timeline Image]
Monitoring impacts of changes: Execution loss

[Graphs showing data over time, with arrows pointing to changes labeled "Implementation of SciOps2"]

PSO - 39th UC meeting. April 27-28, 2015
Paranal Operations: Performances

Visiting Astronomers’ Feedback

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EoM Stats History - Run Completion

EoM Stats History - Astronomer Support

EoM Stats History - Technical Support

EoM Stats History - TIO Support

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PSO - 39th UC meeting. April 27-28, 2015
Remote Access Facility (RAF)

Why?
- Needed for DHA in STGO
- Support of LPO technical activities:
  - technical time, emergency support, additional support for commissioning, etc
- Improve team-work/synergy with LPO engineering

RAF usage is strictly controlled on the mountain side

G-RAF (Garching RAF)
- Successful test runs in Q1/2015
- Full deployment planned later 2015
- Typical usage: occasional technical support
  - Troubleshooting, support/expertise during intervention
Foreseen developments

1) Involvement of TIOs and OSs in Instrument Operation Teams (IOTs)
   - Strengthen emphasis on data quality
   - Efficiency improvements and monitoring

2) Extension of remote access capabilities
   - Consolidate G-RAF, consider remote observing (visitor mode, ToO)

3) Streamlined support of visitor mode observations (OB transfer chain, prioritisation)
   - Take advantage of ESPRESSO requirements for general overhaul of Phase 2 processes
Thank you!