# SLR-2.0

## An overview about the new SLR/LLR control software from Wettzell

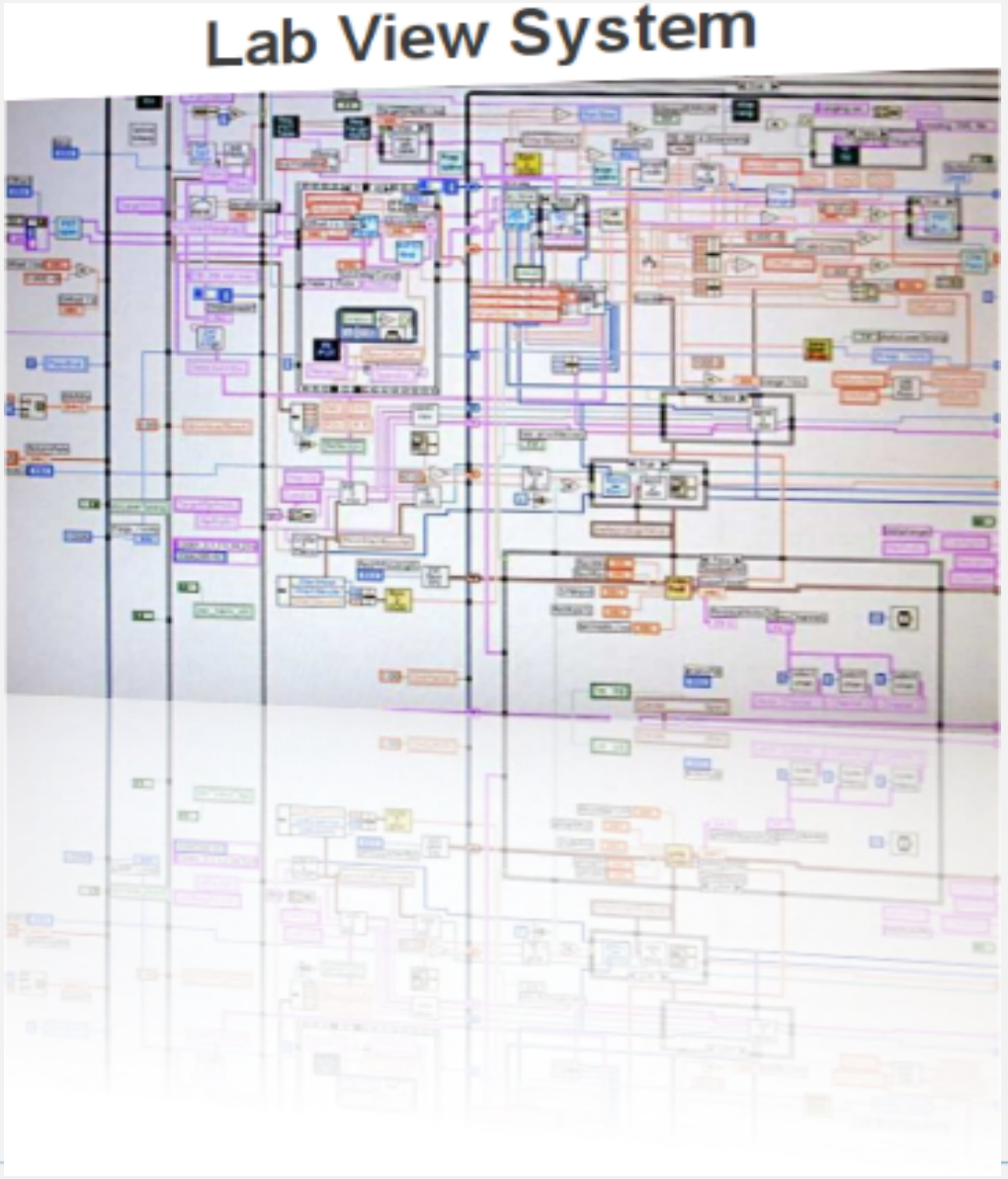
FESG

Martin Ettl (FESG/MPIfR)
ettl@fs.wettzell.de

Bundesamt für Kartographie und Geodäsie

Neidhardt (TUM), Lauber (TUM), Mühlbauer (BGK), Plötz( BGK), Leidig (TUM), Eckl (BKG), L.Schreiber (FH-Deggendorf), Riederer (BKG), Dassing (BKG)

# SLR 1.0 ( historically grown )

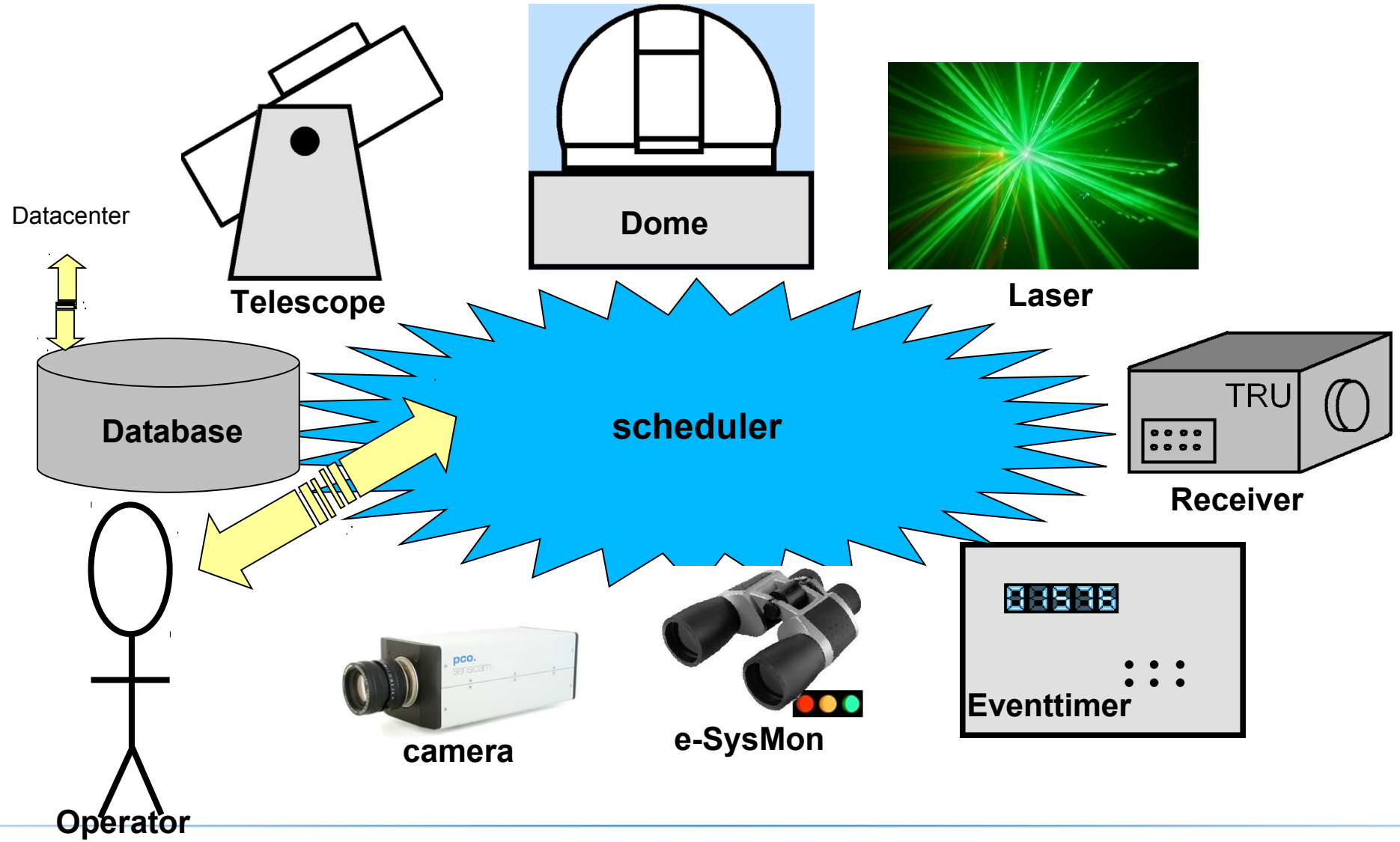



**Issues:**

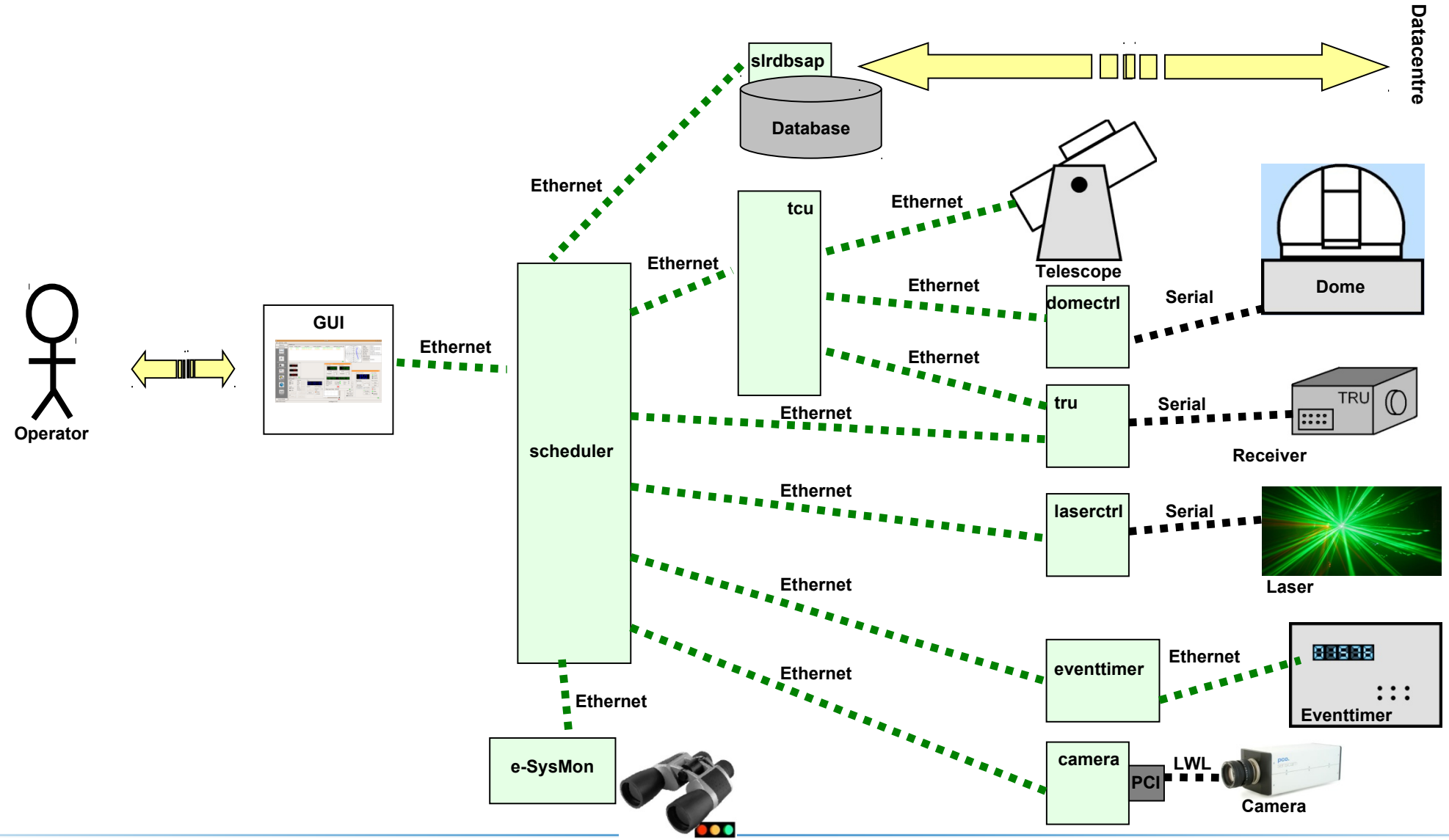
- old computer
- LabView 5.0
- upgrade?
- NI-card (hardware)
- nearly no documentation
- switching between satellites takes too long

**redesign**

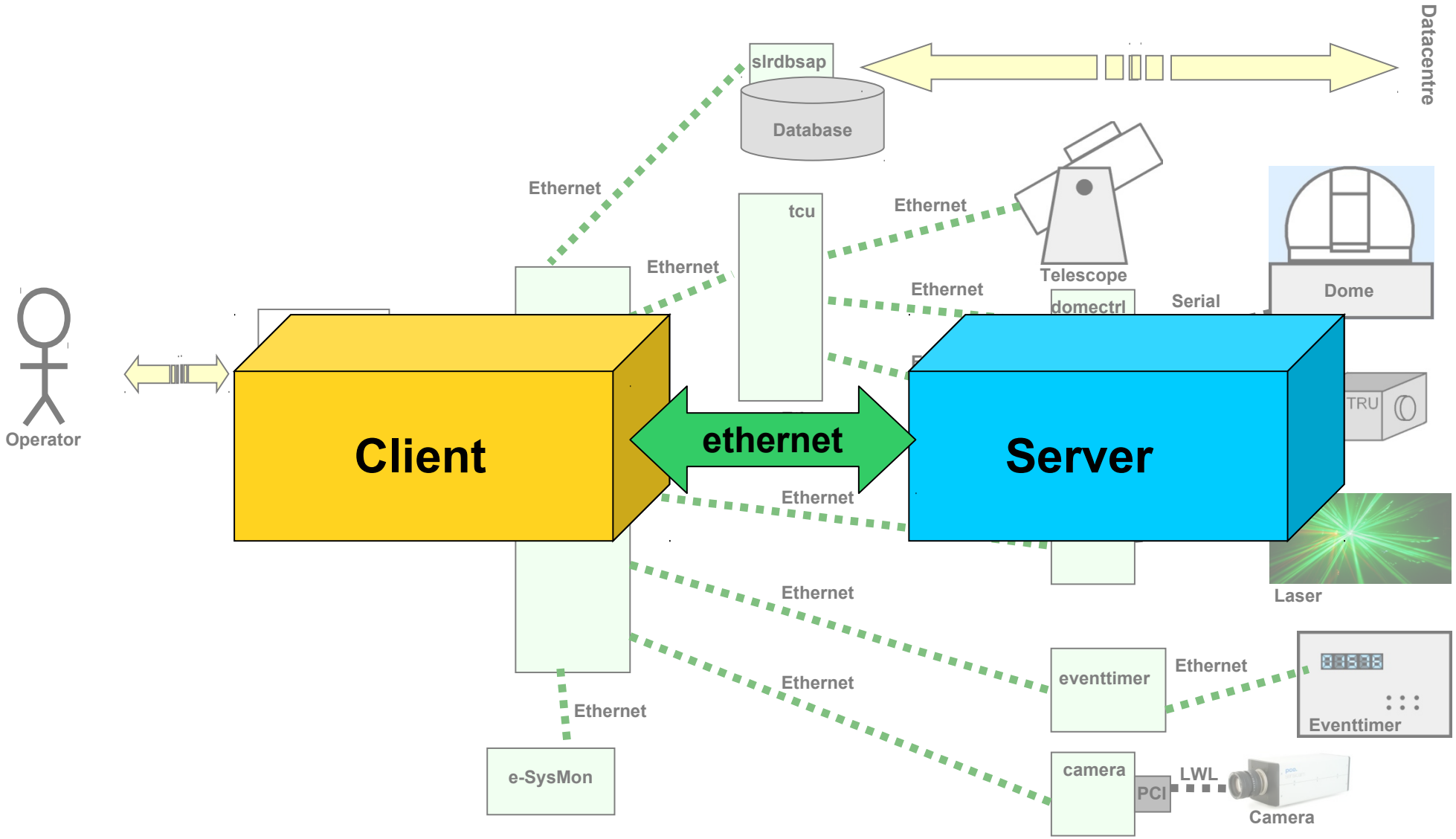
# Decomposition into modules



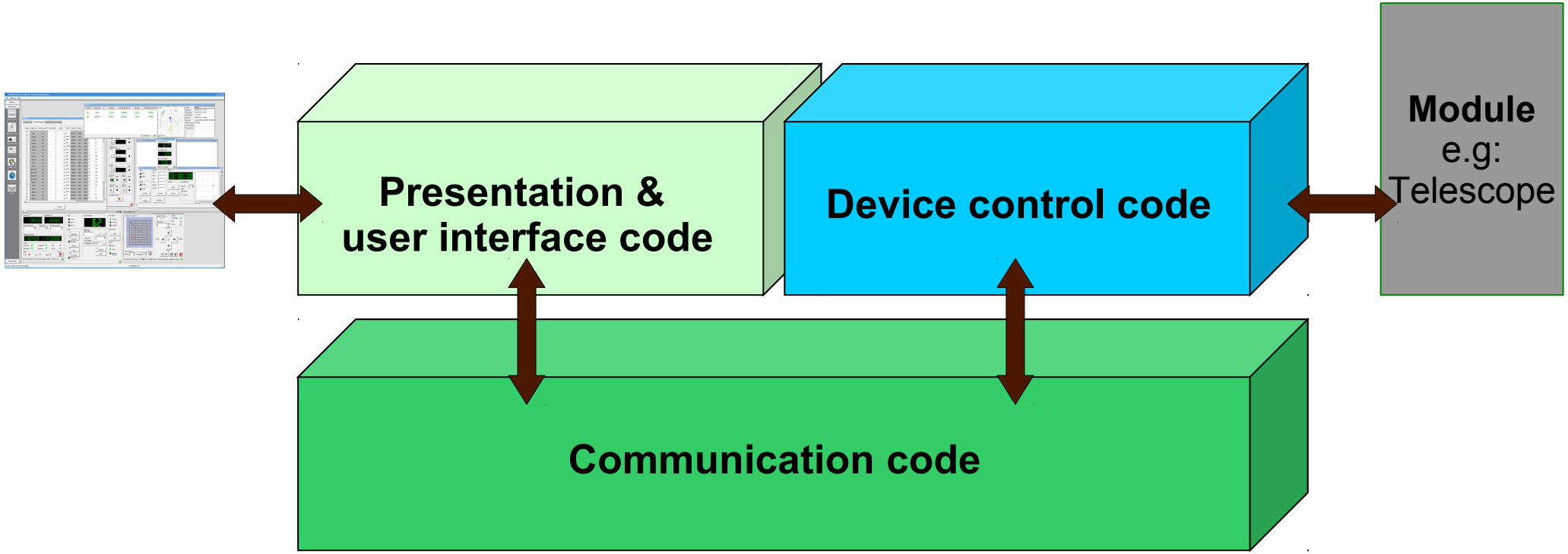
# Internal architecture



# Hierarchical Structure



# Separation of concerns




- strict separation between representation, processing and communication

# Multiple Layers

SLR-2.0

wxWidgets

remote procedure client

Network

remote procedure server

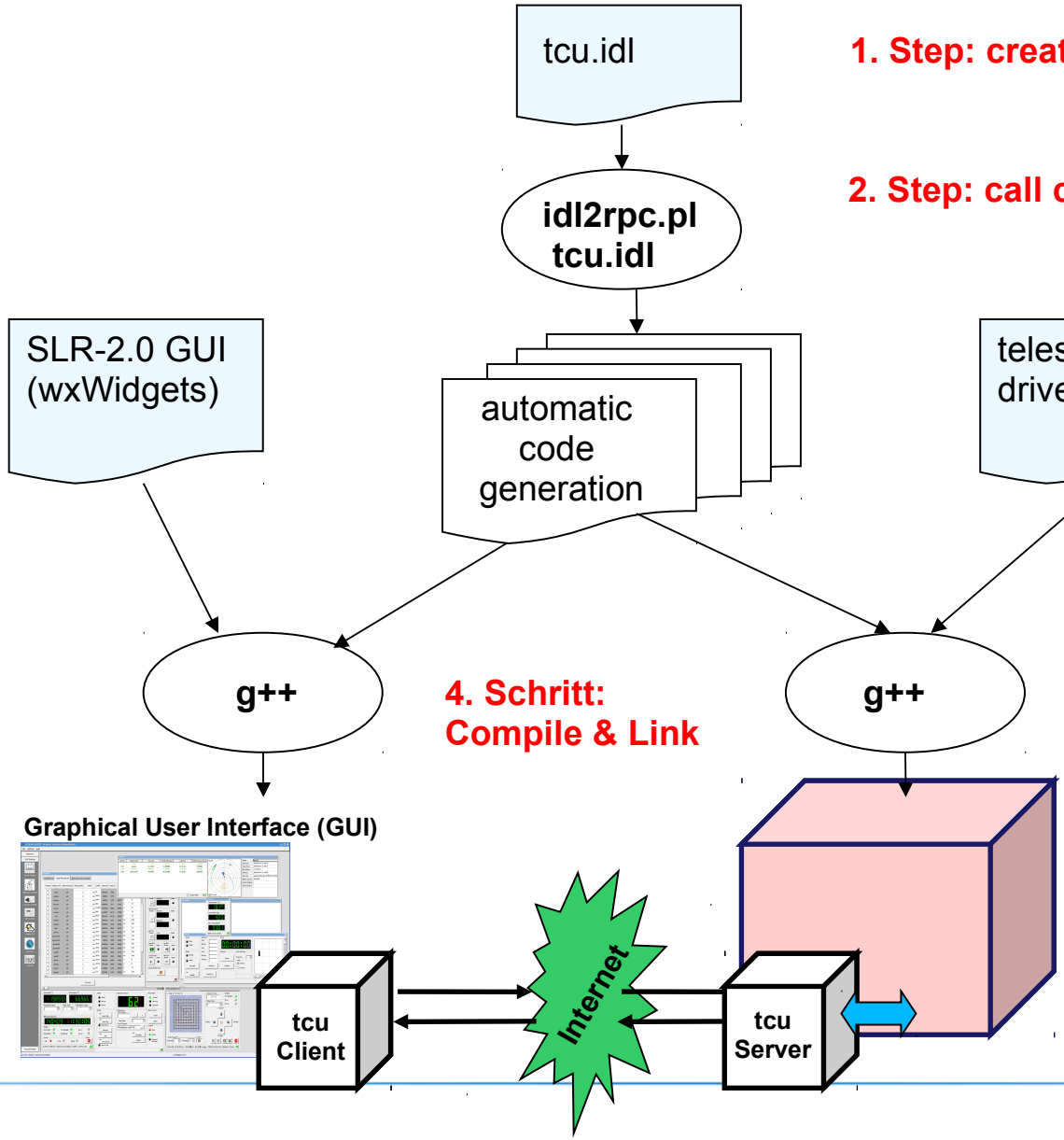
device access

Graphical User Interface (GUI) Client

communication

server functionality

# RPC-Middleware, based on generic programming



# Main Goals

- individual and independent interfaces

- semi-automation

- extensible and flexible design

- standardized and reliable ( poster nr. 47 )

- based on low-level but well proven communication protocols

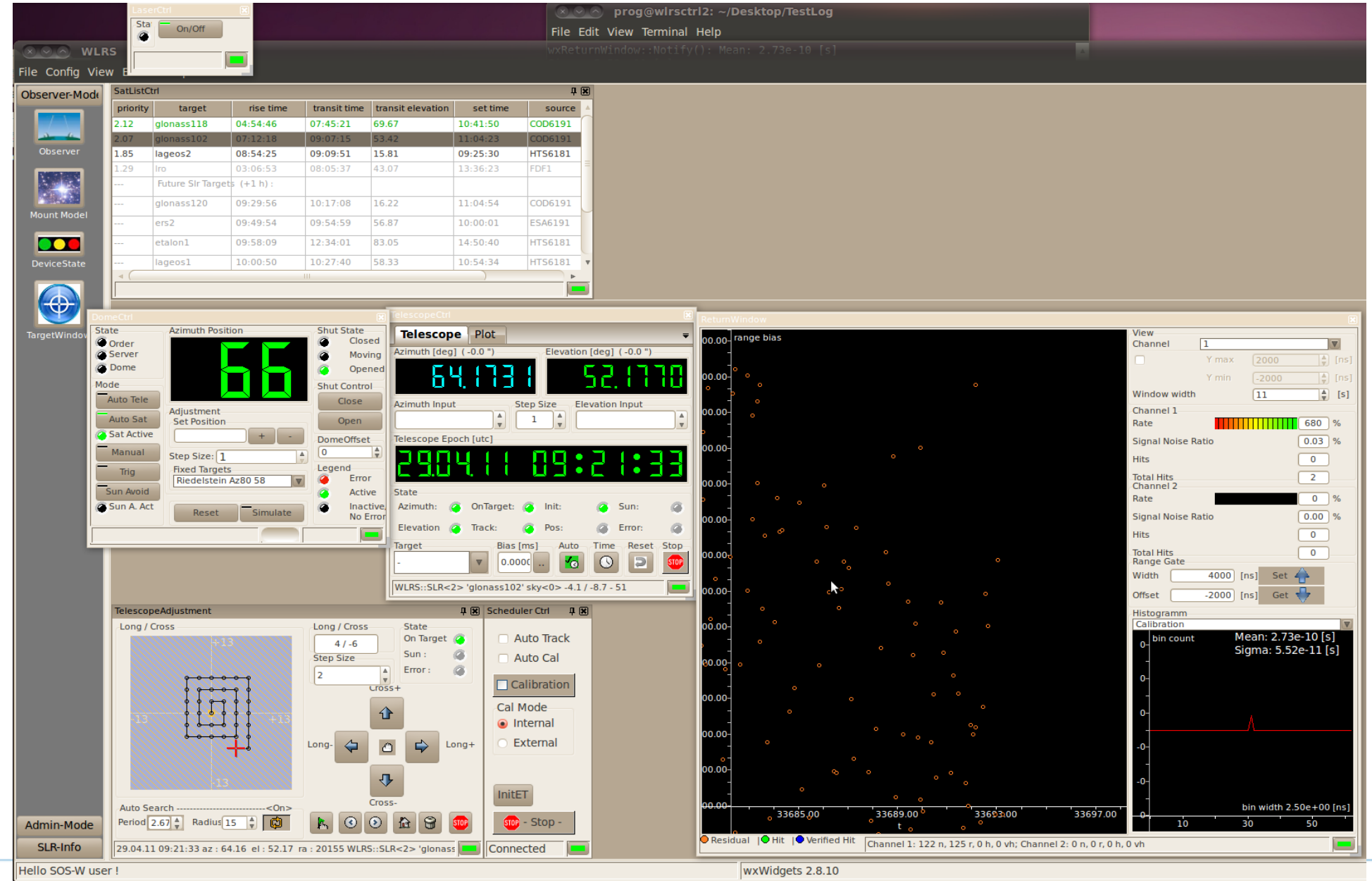
- generic programming techniques to avoid individual network programming

- open source, nearly no proprietary software dependencies

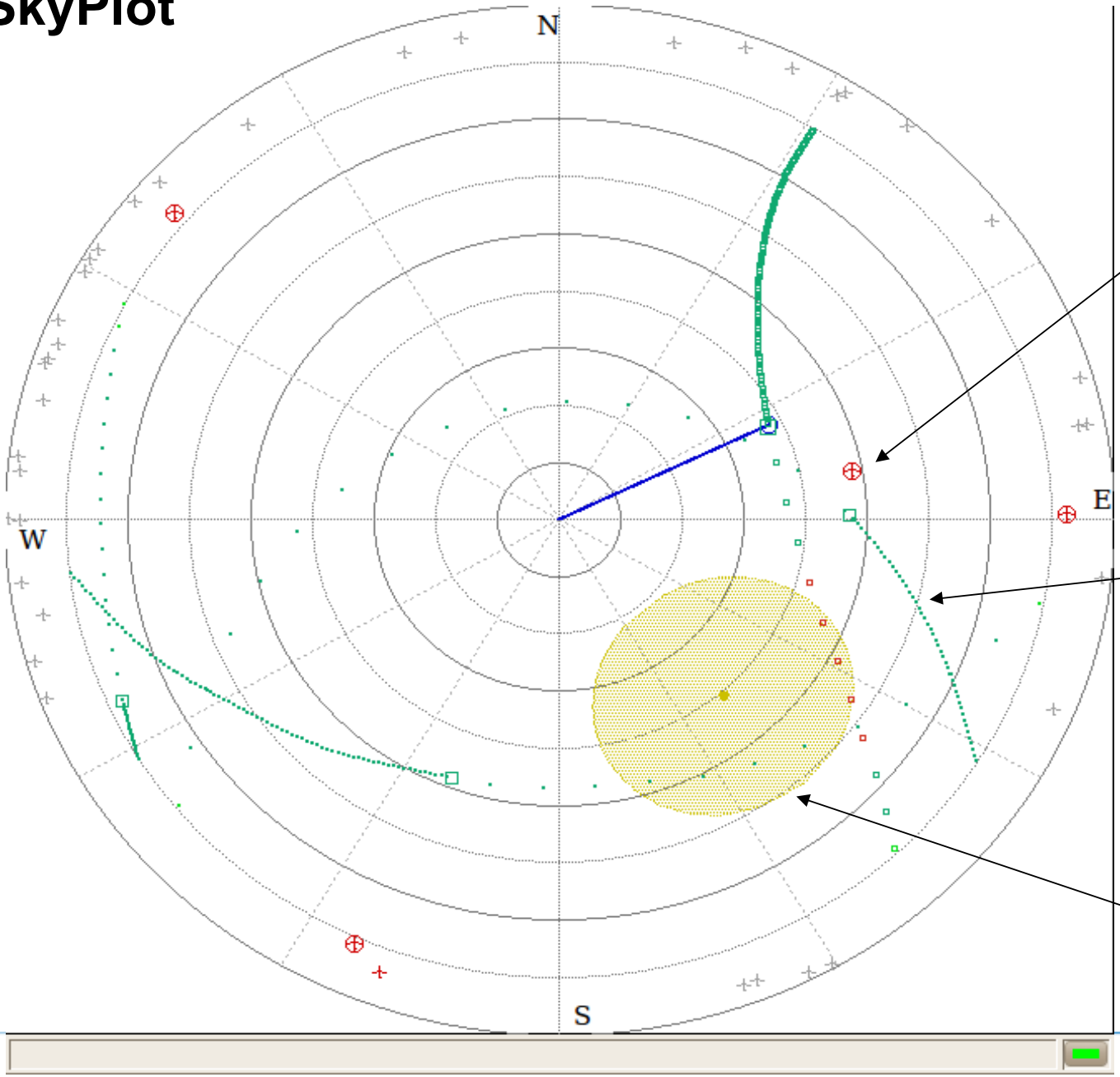
- ANSI – C/C++ compliant software

- works on old and new Linux systems (32/64-Bit)

# Graphical User Interface



# SkyPlot

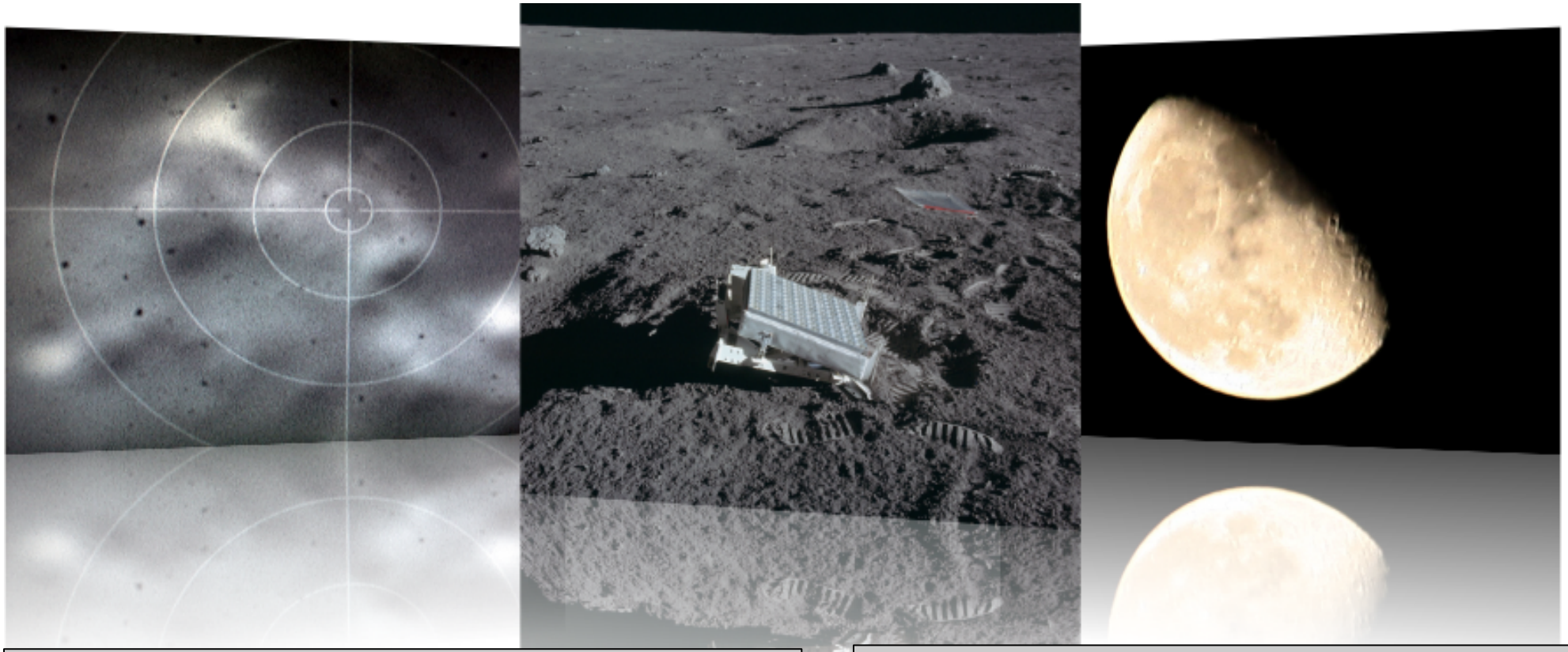



airplane

predicted satellite passage

sun avoidance area

# On the way towards LLR observations



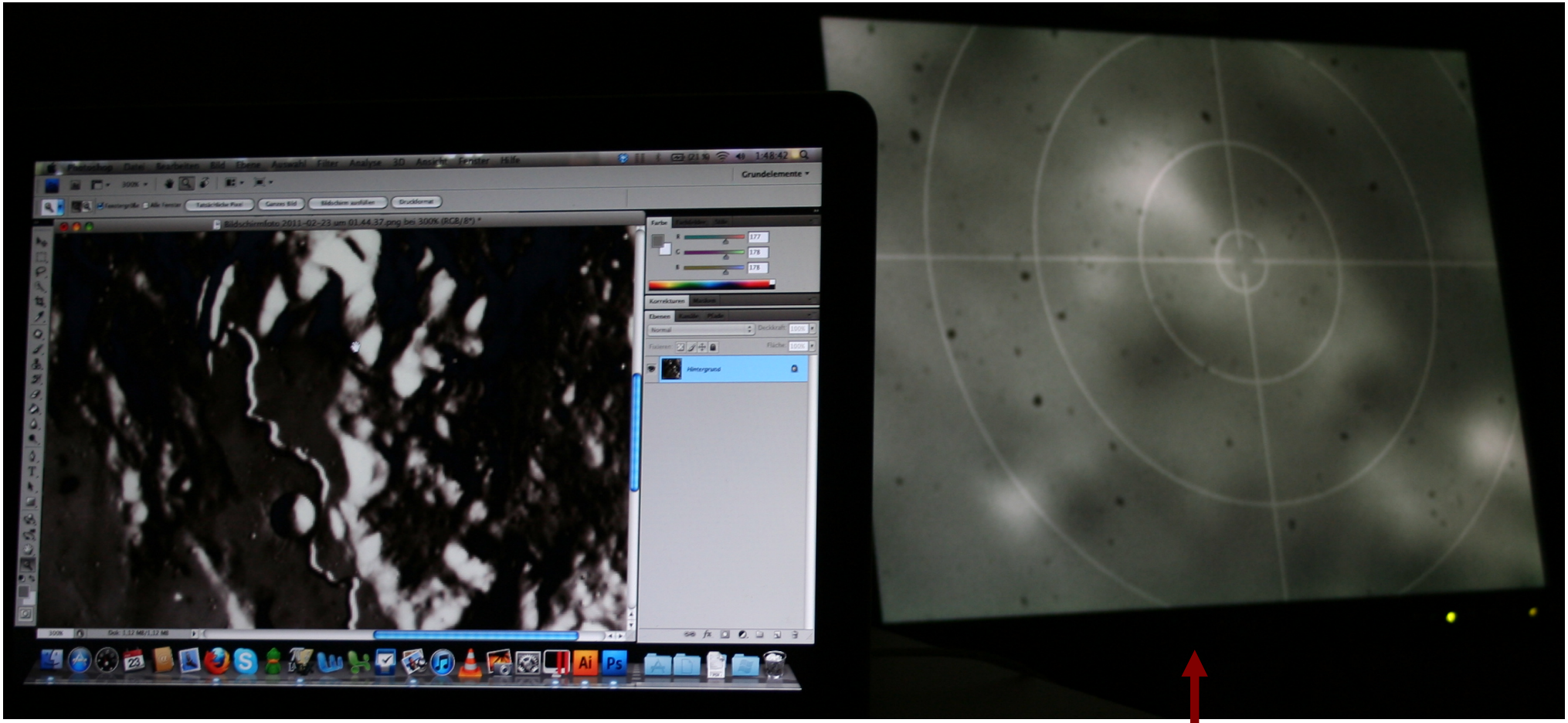
## Diploma Thesis:

- comparison of LLR-prediction software ( Grasse vs. Texas software)
- verification of Wettzell routines

## Next steps:

- implement LLR observation mode in SLR 2.0

http://www.nasa.gov/centers/goddard/images/content/191431main_Apollo_laser_reflector.jpg



**Apollo 15 seen from Wettzell**

Thank you!