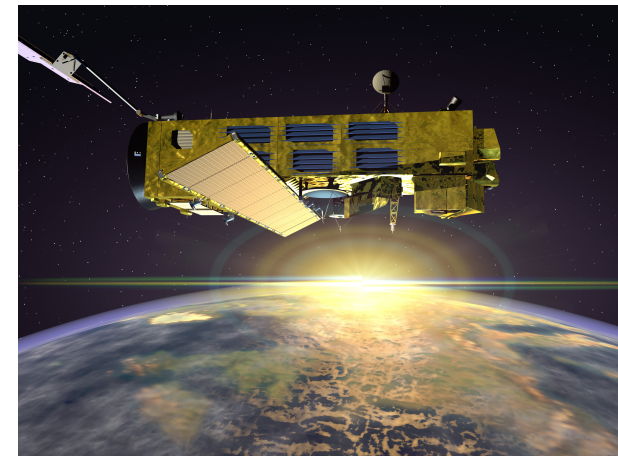
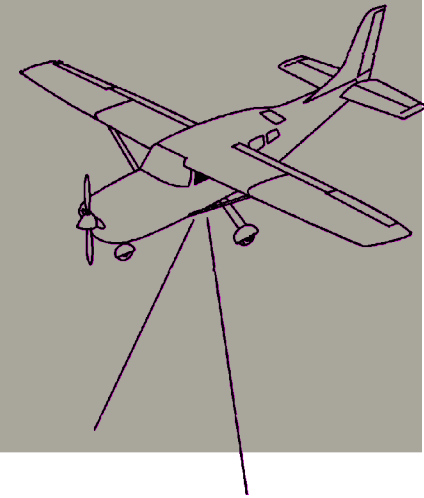


Freie Universität Berlin Institut für Weltraumwissenschaften

Institute for Space Sciences,

Laboratory for Airborne Remote Sensing
and Applications (LARSIA)



Topics

- **Institute & Laboratory (LARSIA)**
- **Instruments and Measurements**
 - **Measurement Examples**

Institute main topics

I

Development of new Methods and Data Products of current and future satellite and airborne Instruments

eg.:

- Cloud height
- droplet size
- water vapour column
- water contents
- Albedo

II

Enhancements of Radiative Transfer Models

RTM: MOMO, XTRA, KBIN

eg.:

- Fluorescence, Raman
- Short wave heating rates
- Polarization

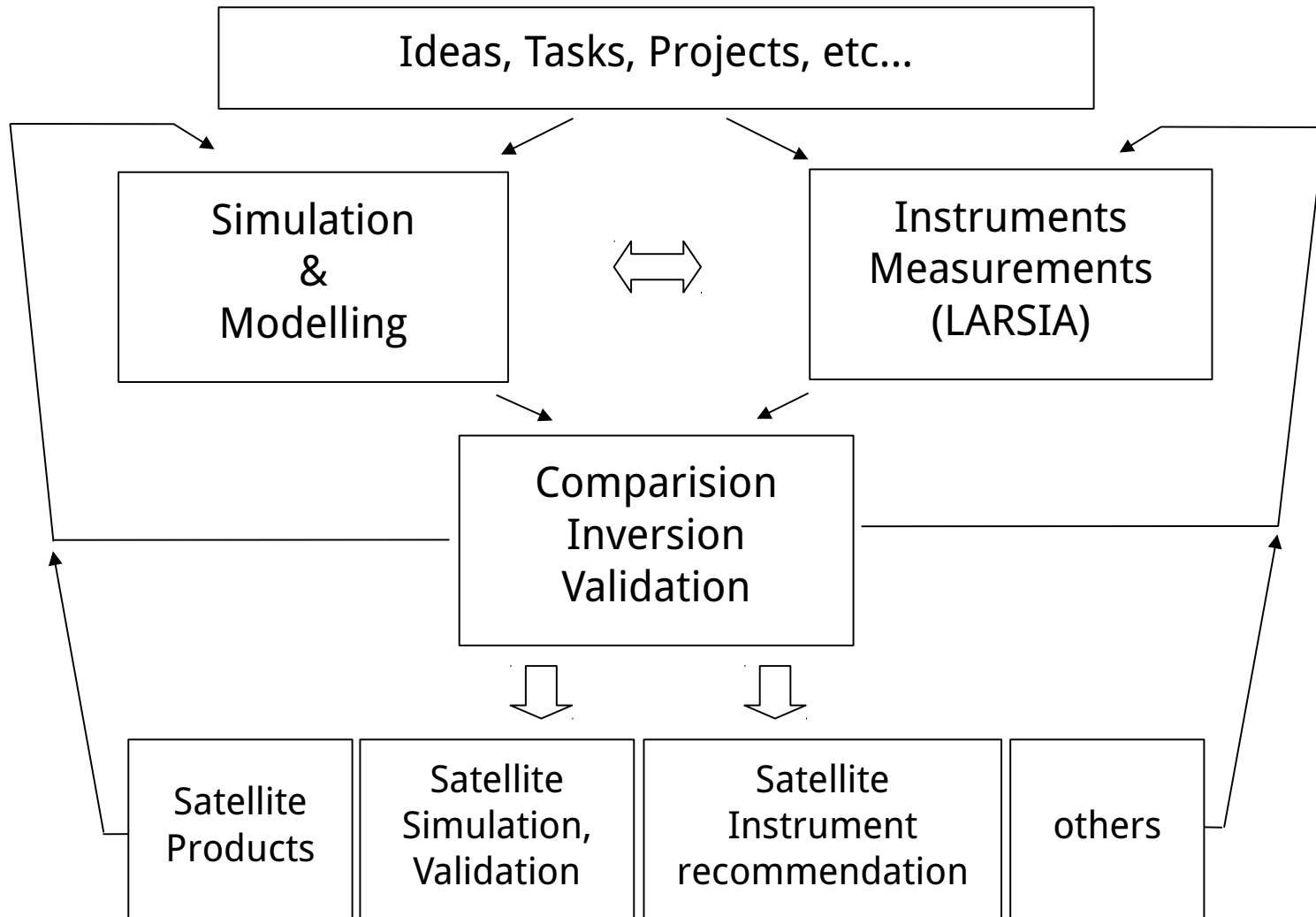
III

Laboratory for Airborne Remote Sensing Instruments and Applications (LARSIA)

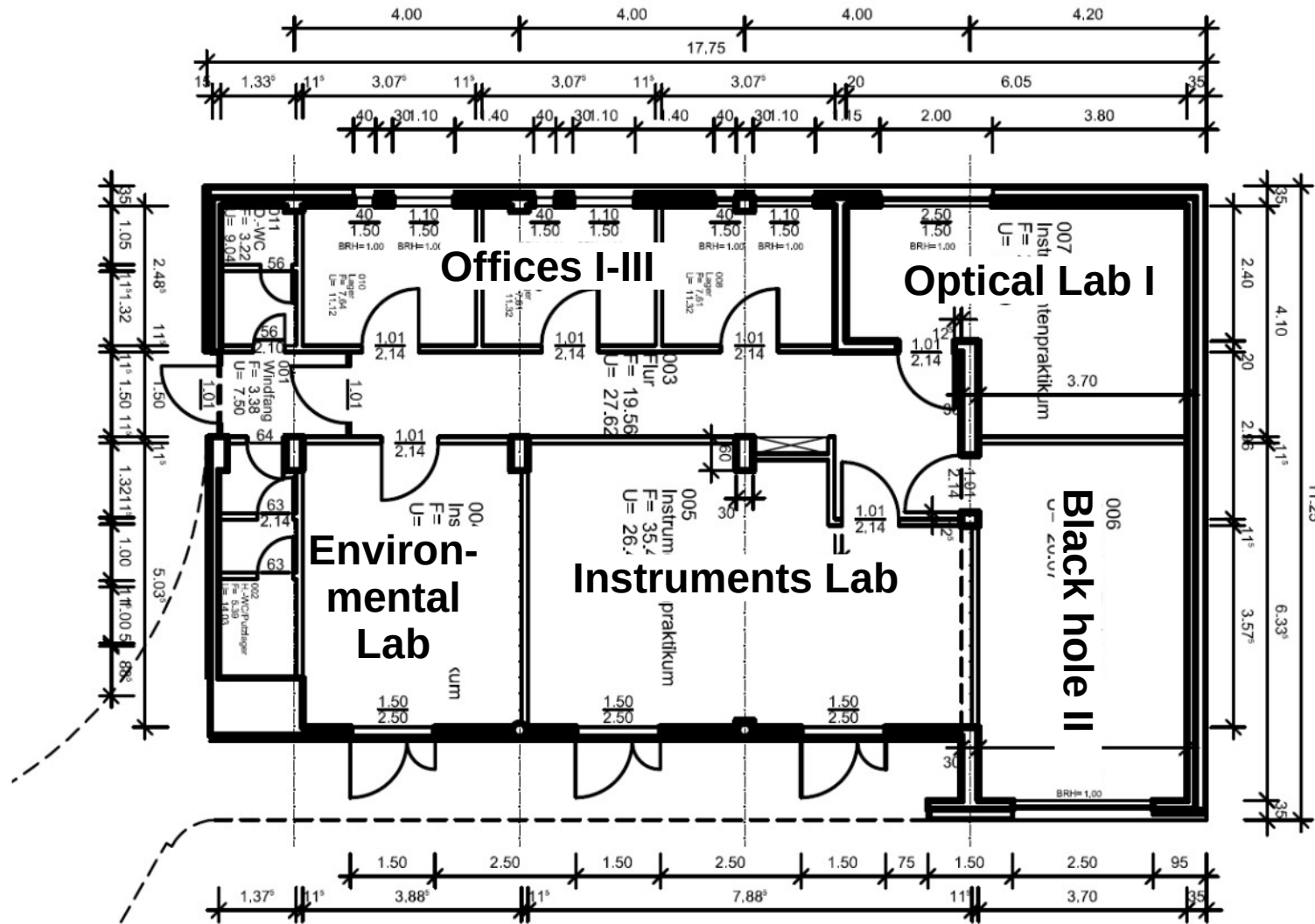
eg.:

- URMS / AMSSP
- Fubiss-Series (UV-NIR)
- Midac-Electronics(FTIR)
- Miriam Project (FTIR)
- Validation campaigns
- Instrument operation

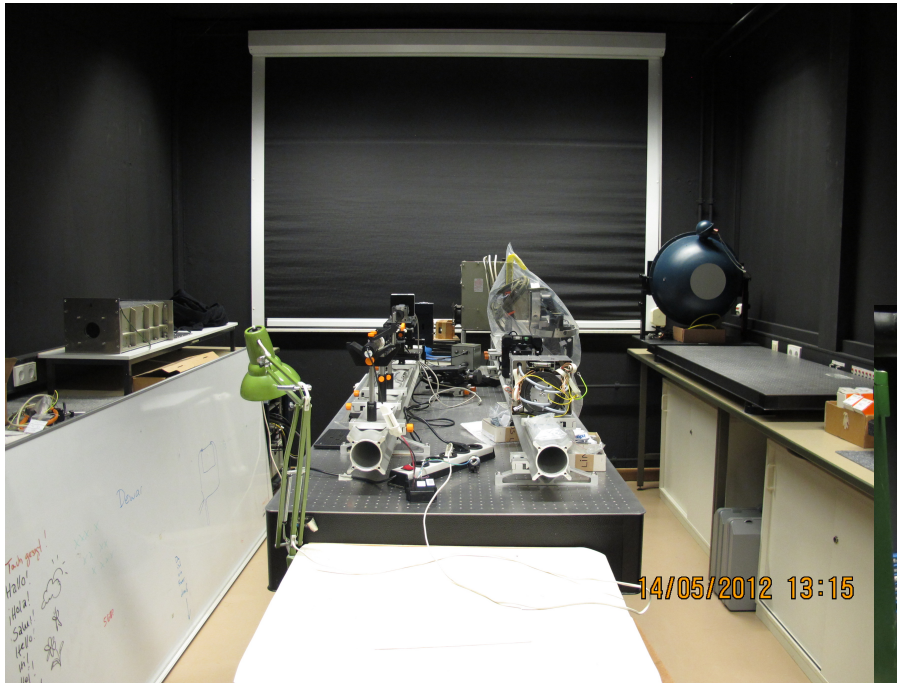
Institutes Crosslinks



Laboratory



Calibration



- Integrating Sphere
- Irradiance standard
- Reflectance Panel
- Line lamps
- etc



- Simulation
- Testing
- Post mission data collection

Environmental testing



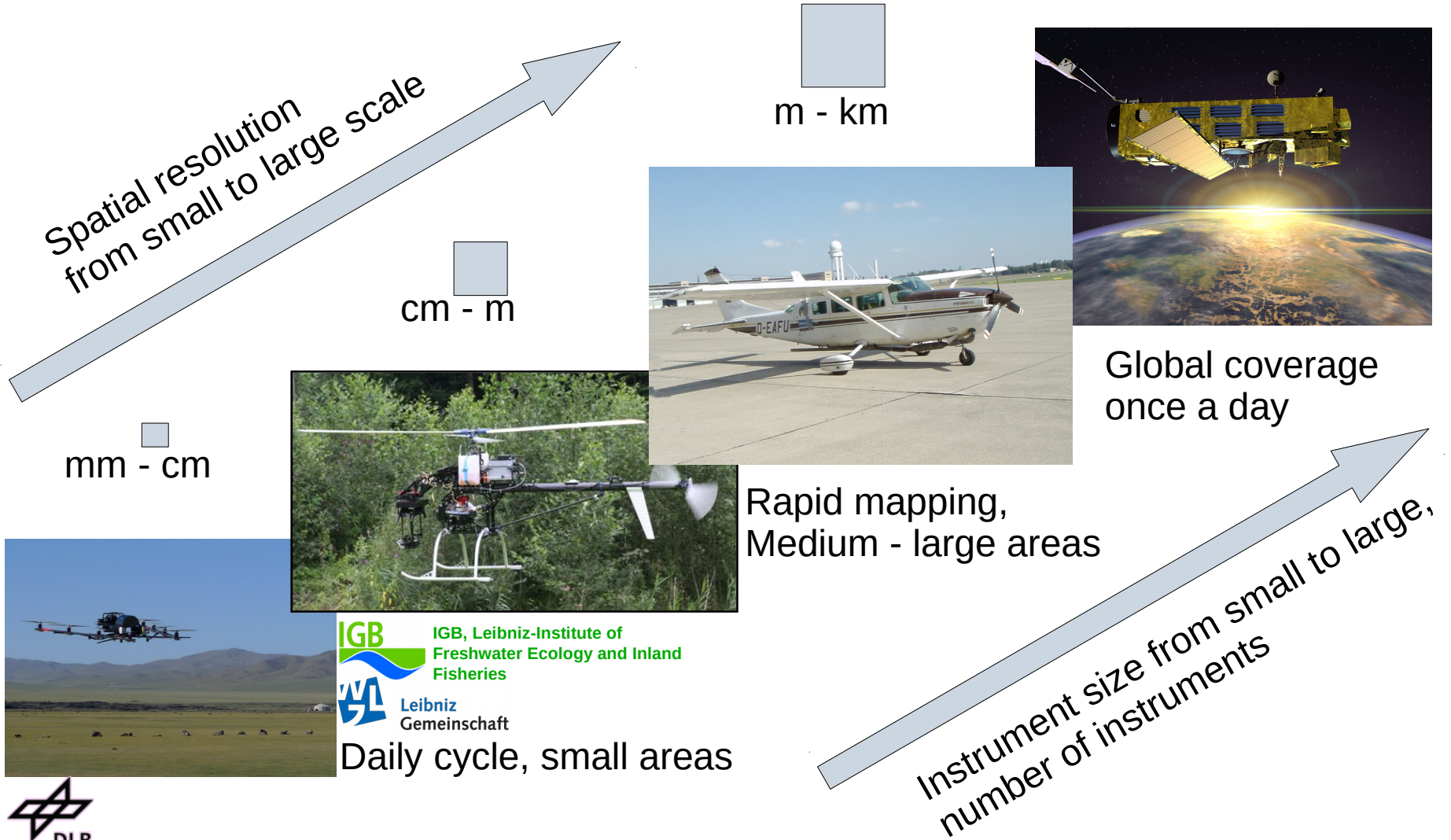
Data processing infrastructure




Linux Cluster
Gigabit Ethernet
>32 Processors
>50 Tbyte

Processing Software
ENVI / IDL
C / C++
Java
Fortran
matlab

Environmental Surveys

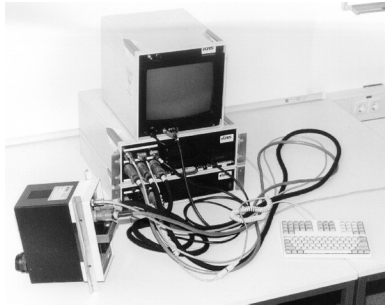


 IGB, Leibniz-Institute of Freshwater Ecology and Inland Fisheries

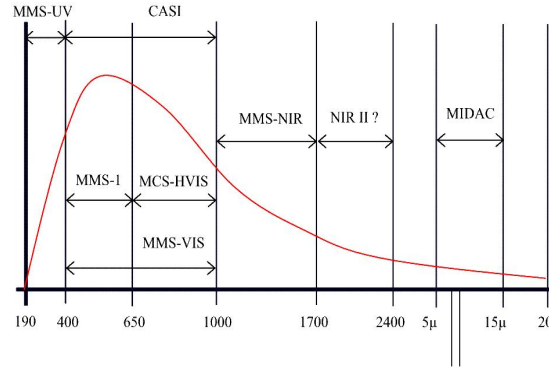
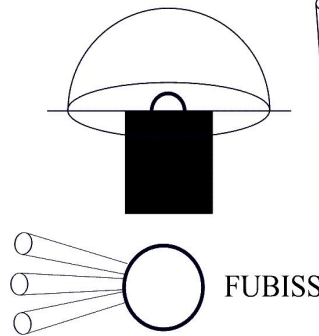
 Leibniz Gemeinschaft

Daily cycle, small areas

LARSIA instrumentation



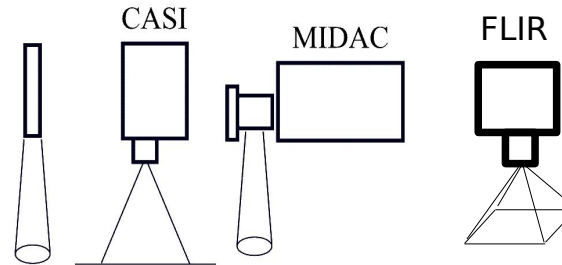
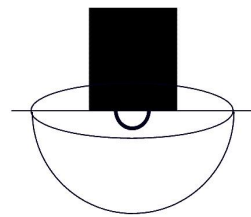
Compact Airborne Spectrographic Imager (CASI, FUB / Nerc)



Portable Lidar System (POLIS)
Meteorologisches Institut
University München



FTIR-Spectrometer
MIDAC
FUB



IR-Camera
(ThermaCam 2000, FLIR)
FH Dessau



Stabilized Platform
GSM 3000
SM 2000
DLR / FUB



Scientific Video Camera
(FLI SC4022)
FUB



Airborne Imaging Spectrometer
(AISA+)
FH Dessau

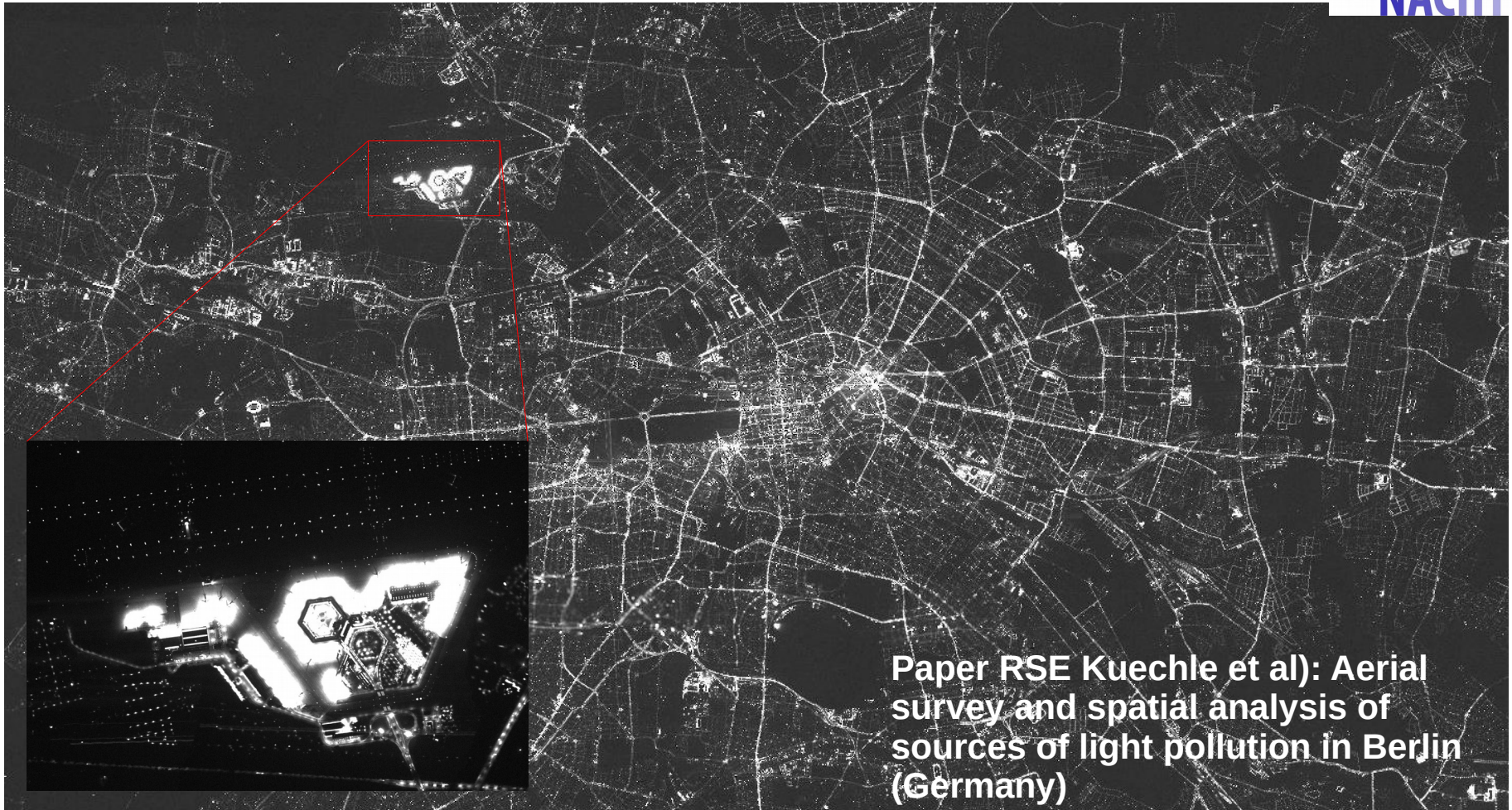


IR-Camera
(Variocam HR)
IGB / FUB

Inertial Systems
Applanix (DLR)
Aerocontrol (DLR)
Imar FSAS / SPAN (FUB)

Bmbf: Verlust der Nacht

VERLUST
der
NACHT



Paper RSE Kuechle et al): Aerial survey and spatial analysis of sources of light pollution in Berlin (Germany)

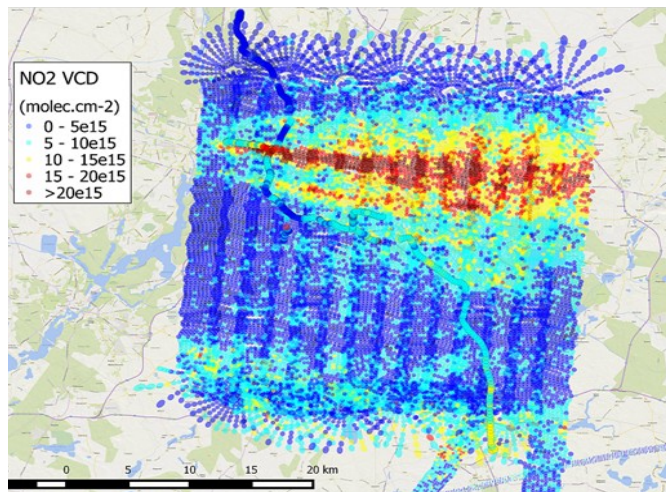
Berlin at night, Mosaic of >3000 images with < 1 m ground resolution

25th anniversary “Fall of Berlin wall”

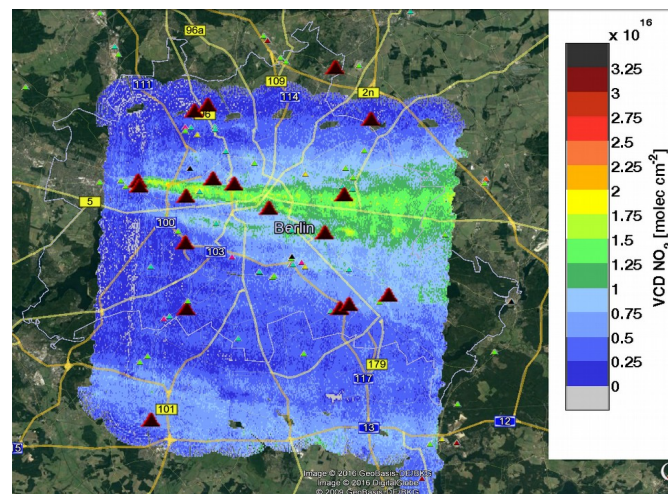


AROMAPEX, NO₂ flights Berlin 2016

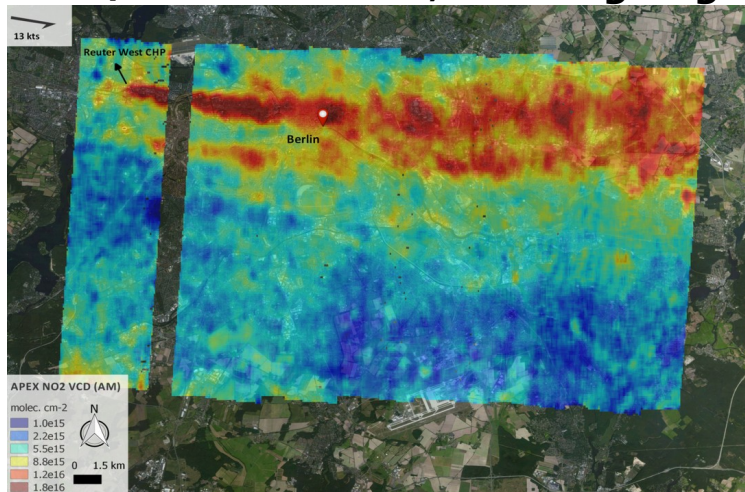
SWING (BIRA + FUB, Morning Flight)



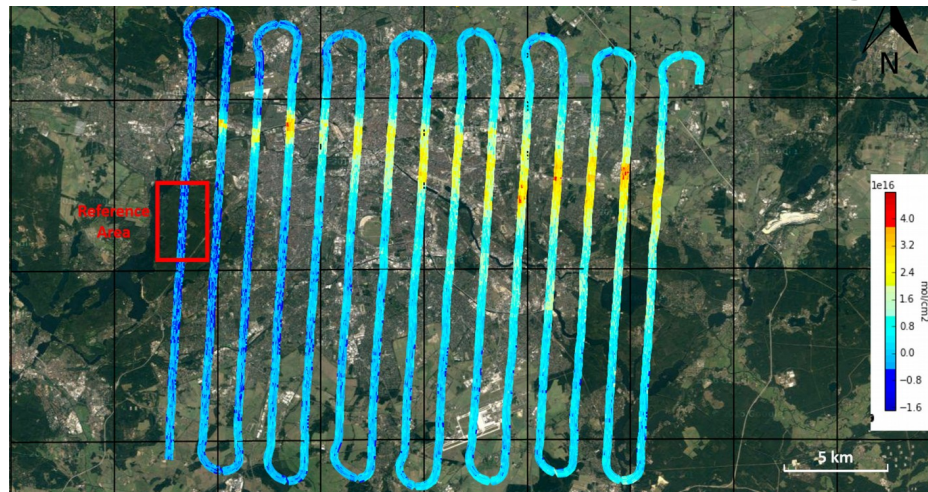
AirMap (Uni Bremen + FUB, Morning Flight)



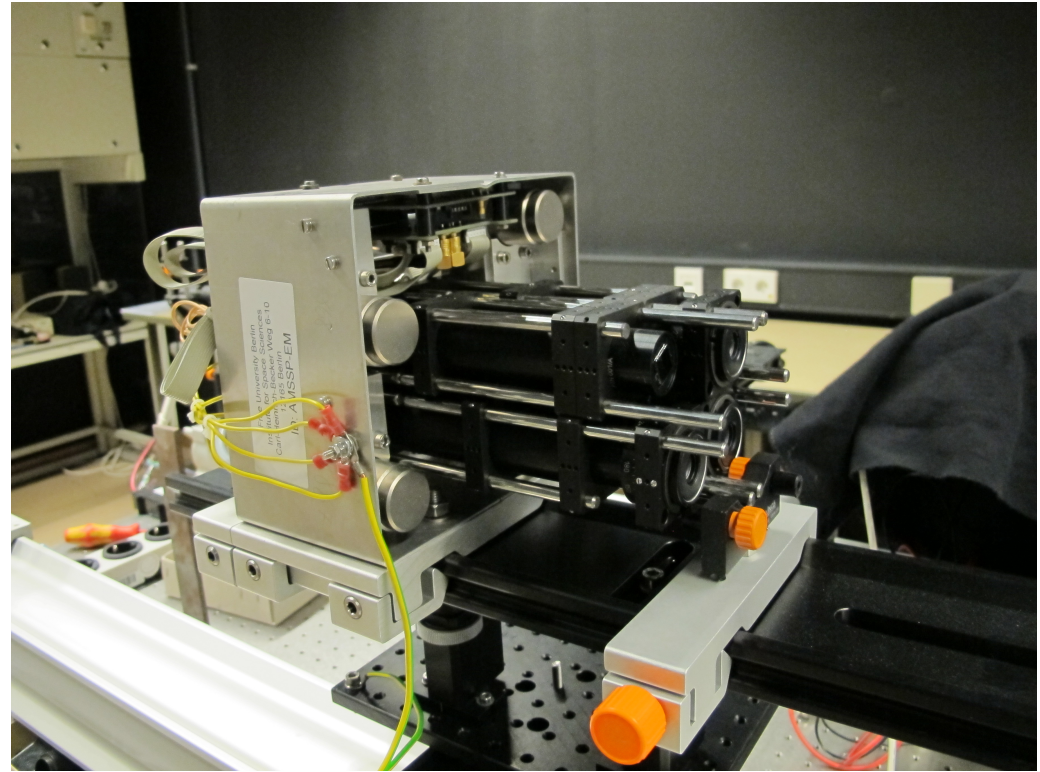
APEX (VITO/RSL+DLR, Morning Flight)



Spectrolite (TNO + FUB, Afternoon Flight)



Instrument URMS / AMSSP



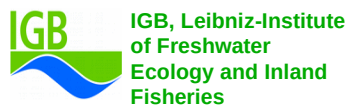
AMSSP: Airborne Multi-Spectral Sunphoto-
and Polarimeter

URMS: Universal Radiation Measurement Unit

Institute Cooperation Partners



WeW



Météo-France

