The main goal of the General Observation Period (GOP) within the German Research Foundation’s Priority Program on Quantitative Precipitation Forecasting (SPP-PQP) is to gather a comprehensive data set suitable for testing hypotheses and new modeling techniques developed within the SPP-PQP. The GOP encompasses the Convectively and Orographically induced Precipitation Study COPS performed in south-west Germany in summer 2007 both in time and space to provide information of all kinds of precipitation types and to relate the COPS results to a broader perspective (longer time series and larger spatial domain). The duration of one year will open up the possibility to statistically approach model problems and better pinpoint specific model weaknesses. The GOP will

- gather as many data about the atmospheric state as possible within an area covering Germany and its neighboring states. The Alpine states (e.g. Austria and Switzerland) are of special interest to include the complex orography and to connect with D-PHASE.
- optimize the exploitation of existing instrumentation by gathering routine measurements normally not available to the scientific community,
- focus on continuous/coordinated observations using existing instruments which are suitable for statistical evaluation.
- focus on measurements, which are available in near real-time to enable a timely use within the PQP
- perform a rigorous quality control, cross-checking, and error estimation of the data,
- tailor the observations to model output (e.g., COSMO-K, COSMO-E, D-PHASE forecasts),
- enable an easy access to data, quicklooks and first order analysis to the PQP.
- For efficient dissemination the data will be archived in a database for use within the SPP.

An important topic for optimal exploitation of the GOP data is the creation of an optimal evaluation environment. Therefore also techniques to bring together observations and model forecasts have been developed. For that purpose also forward operators which transfer the model output to observation space have been developed, e.g. the microwave radiative transfer model MWMOD and the polarimetric radar forward operator SynPolRad (by DLR).

**GOP Outline**

**Ground-Based Data Sets**

**Rain Gauges (GOP-1)**
- DWD rain gauge network: daily sums: ~3000
  - 1 h resolution: ~700
- Berlin high density rain gauge network: ~60, 5 min
- German water authorities and environmental agencies: ~200, 5 min
- DWD 24-h analyses: RANIE gauge only
- DWD 24-h analysis: REGNIE

**Weather Radar (GOP-2)**
- DWD radar network: 16 C-Band
  - Polarimetric research radars
  - POLDIRAD (DLR)
  - Hohenpeilensberg (DWD)
  - X-Band radar (UBonn)
  - C-Band radar (FZ Karlsruhe)
  - RMI radar (Wideumont)
  - DWD international composite
  - DWD national composite
  - DWD online calibrated radar precipitation (RADOILAN)

**Met. Stations (GOP-8)**
- Cloudnet stations (Lindenberg, Cabauw, Chillibot, Sira)
- ARM Mobile Facility Humboldt
- COPES supersites
- Other (Schweifenerhaus, Oberpfaffenhofen, Tutlingen, Hartheim, Zimmerman, Hohenheim, Bem, Payerne)

**Lidar (GOP-4)**
- Lidar (GOP-4)
  - Earlinet (Hamburg, Leipzig, Garmisch, München)
  - DWD ceilometer network
  - several ceilometer stations operated by universities / research institutes

**GPS (GOP-5)**
- GPS network for integrated water vapor
- SAFIR VHF network (Northern Germany, ICH-GC + flash height)

**Lightning (GOP-6)**
- Lightning for cloud-to-ground (GC) and in-cloud (IC) discharges:
  - LINET VLF Network (Bavaria, ICH-GC)

**Drop size distribution (GOP-3)**

**Satellite Observations (GOP-7)**

**Routine Model Data (GOP-9)**

**Integrated Water Vapor: GPS vs Model**