Coordinated Energy and Water Cycle Observation Project (CEOP)
2nd Annual Meeting
Geneve, Switzerland

Breakout Session by Scientific Foci Topic

HIGH ELEVATIONS

September 17, 2008

Breakout Session: HIGH ELEVATIONS

Preliminary questions:

(i) Do you agree with HE definition?
(ii) Which are your expectations within HE ?
(iii) Which are the main scientific issues to be examined in HE WG?
(iv) Which is your contribution to HE WG?

Questions to be Addressed:

(i) Do our goals need to be updated?
(ii) What metrics should be used to summarize status?
(iii) What are the model products needed, what observational datasets?
(iv) How can we best coordinate RHP efforts to contribute to this Foci?
(v) What are plans for next 1-3 year period?

Definition of HE

"High Elevations" include areas such as:

- Altitudes along and above the timberline,
- high plateaus,
- rough relief,
- … and any sites that directly create or influence regional climate patterns (e.g. water supply) etc.

- *Water supply, atmospheric circulation, natural hazards human beings*
- *High elevation regions can provide unique information on land atmosphere interactions because of the extreme difference between land surface and troposphere conditions and for the study of natural and anthropogenic aerosols..*

5 TASKS

1. **Observation**
   - data collection and management
   - extension of the observations (GCOS)
   - generate useful dataset (GTOS)

2. **Modeling**
   - GCM, RCM
   - energy cycle, radiation balance
   - model intercomparison

3. **Aerosol** – atmospheric chemistry research (ACPC)
4. **Cryosphere** - indicator of impact (CLiC)
5. **Water resources and human dimension** (MRI, …)

(ii) WHAT METRICS SHOULD BE USED TO SUMMARIZE STATUS?

- Identify representative HE stations around the world (max. 50), which are already operative
- Select 20-30 stations by using as main criteria: monitoring plans, QA/QC procedures, data availability, etc.
- Identify max 10 HE sites for their insertion as new CEOP Reference Sites
- Modeling: contribution to local regional down-scaling, modelig comparison

(iii) WHAT ARE THE MODEL PRODUCTS NEEDED, WHAT OBSERVATIONAL DATASET?

- dedicated models for complex orographic ares
- ydrometeorological and atmospheric stations

(iv) HOW CAN WE BEST COORDINATE RHP EFFORTS TO CONTRIBUTE TO THIS FOCI?

- Establishment of groups focused on:
  - > selection of existing HE stations
  - > modeling activity on HE areas
  - > contribution from satellite to collect more information on HE
  - > research groups focused on specific HE areas (Tibetan Plateau, Andes, …)

(v) WHAT ARE PLAN FOR NEXT 1-3 YEAR PERIOD?

1. Water energy cycle observations at HE

- promote establishment of HE stations (AWSs and super stations)

- data management, standardization (start in Tibet then move to other regions)

- CEOP list of new reference sites (water energy cycles dataset)

2. Modeling

- focus on up-scaling for GCMS and RCM for a better reproduction of: wec, radiation balance, diurnal cycle (odeling implementation plan)

3. Aerosol and atmospheric chemistry research

-research on natural and anthropogenic aerosol in HE areas for climate applications

- effects of aerosol on cloud and precipitation

4. Alpine cryosphere

- develop indicators and predictive capacity

5. Water resources

- evaluate impacts on society

6. Satellite data application