A Big Earth Data Platform for Three Poles

**Asian monsoon experiment on the Tibetan Plateau (GAME/Tibet) dataset for global energy water cycle (1997-1998)**

1、Description

The GAME/Tibet project conducted a short-term pre-intensive observing period (PIOP) at the Amdo station in the summer of 1997. From May to September 1998, five consecutive IOPs were scheduled, with approximately one month per IOP. More than 80 scientific workers from China, Japan and South Korea went to the Tibetan Plateau in batches and carried out arduous and fruitful work.  
The observation tests and plans were successfully completed. After the completion of the IOP in September, 1998, five automatic weather stations (AWS), one Portable Atmospheric Mosonet (PAM), one boundary layer tower and integrated radiation observatory (Amdo) and nine soil temperature and moisture observation stations have been continuously observed to date and have obtained extremely valuable information for 8 years and 6 months consecutively (starting from June 1997).  
The experimental area is located in Nagqu, in northern Tibet, and has an area of 150 km × 200 km (Fig. 1), and observation points are also established in D66, Tuotuohe and the Tanggula Mountain Pass (D105) along the Qinghai-Tibet Highway. The following observation stations (sites) are set up on different underlying surfaces including plateau meadows, plateau lakes, and desert steppe. (1) Two multidisciplinary (atmosphere and soil) observation stations, Amdo and NaquFx, have multicomponent radiation observation systems, gradient observation towers, turbulent flux direct measurement systems, soil temperature and moisture gradient observations, radiosonde, ground soil moisture observation networks and multiangle spectrometer observations used as ground truth values for satellite data, etc. (2) There are six automatic weather stations (D66, Tuotuohe, D105, D110, Nagqu and MS3608), each of which has observations of wind, temperature, humidity, pressure, radiation, surface temperature, soil temperature and moisture, precipitation, etc. (3) PAM stations (Portable Automated Meso - net) located approximately 80 km north and south of Nagqu (MS3478 and MS3637) have major projects similar to the two integrated observation stations (Amdo and NaquFx) above and to the wind, temperature and humidity turbulence observations. (4) There are nine soil temperature and moisture observation sites (D66, Tuotuohe, D110, WADD, NODA, Amdo, MS3478, MS3478 and MS3637), each of which has soil temperature measurements of 6 layers and soil moisture measurement of 9 layers. (5) A 3D Doppler Radar Station is located in the south of Nagqu, and there are seven encrypted precipitation gauges in the adjacent (within approximately 100 km) area. The radiation observation system mainly studies the plateau cloud and precipitation system and serves as a ground true value station for the TRMM satellite.  
The GAME-Tibet project seeks to gain insight into the land-atmosphere interaction on the Tibetan Plateau and its impact on the Asian monsoon system through enhanced observational experiments and long-term monitoring at different spatial scales.  
After the end of 2000, the GAME/Tibet project joined the “Coordinated Enhanced Observing Period (CEOP)” jointly organized by two international plans, GEWEX (Global Energy and Water Cycle Experiment) and CL IVAR (Climate Change and Forecast). The Asia-Australia Monsoon Project (CAMP) on the Tibetan Plateau of the Global Coordinated Enhanced Observation Program (CEOP) has been started.  
The data set contains POP data for 1997 and IOP data for 1998.   
Ⅰ. The POP data of 1997 contain the following.  
   
1. Precipitation Gauge Network (PGN)   
   
2. Radiosonde Observation at Naqu   
   
3. Analysis of Stable Isotope for Water Cycle Studies   
   
4. Doppler radar observation   
   
5. Large-Scale Hydrological Cycle in Tibet   
   
(Link to Numaguchi's home page)  
   
6. Portable Automated Mesonet (PAM) [Japanese]   
   
7. Ground Truth Data Collection (GTDC) for Satellite Remote Sensing   
   
8. Tanggula AWS (D105 station in Tibet)   
   
9. Syamboche AWS (GEN/GAME AWS in Nepal)   
   
Ⅱ. The IOP data of 1998 contain the following.  
   
1. Anduo   
   
（1） PBL Tower, 2） Radiation, 3） Turbulence   
   
SMTMS   
   
2. D66 （1） AWS （2） SMTMS （3） GTDC （4) Precipitation  
   
3. Toutouhe （1） AWS （2） SMTMS （3 ）GTDC  
   
4. D110 （1） AWS （2） SMTMS (3) GTDC (4) SMTMS  
   
5. MS3608 （1） AWS （2） SMTMS （3） Precipitation  
   
6. D105 （1） Precipitation (2) GTDC  
   
7. MS3478(NPAM) （1） PAM （2） Precipitation  
   
8. MS3637 （1） PAM （2） SMTMS （3） Precipitation   
   
9. NODAA （1） SMTMS (2) Precipitation   
   
10. WADD （1） SMTMS （2） Precipitation （3） Barometricmd  
   
11. AQB （1） Precipitation   
   
12. Dienpa (RS2) （1） Precipitation   
   
13. Zuri （1） Precipitation （2） Barometricmd  
   
14. Juze （1） Precipitation   
   
15. Naqu hydrological station （1） Precipitation   
   
16. MSofNaqu （1） Barometricmd  
   
16. Naquradarsite  
   
（1）Radar system （2） Precipitation   
   
17. Syangboche [Nepal] （1） AWS  
   
18. Shiqu-anhe （1） AWS （2） GTDC  
   
19. Seqin-Xiang （1） Barometricmd  
   
20. NODA （1）Barometricmd （2） Precipitation （3) SMTMS  
   
21. NaquHY （1） Barometricmd （2） Precipitation  
   
22. NaquFx(BJ) （1） GTDC（2) PBLmd (3) Precipitation  
   
23. MS3543 （1） Precipitation  
   
24. MNofAmdo （1） Barometricmd  
   
25. Mardi （1） Runoff  
   
26. Gaize （1） AWS （2） GTDC （3） Sonde  
   
A CD of the data GAME-Tibet POP/IOP dataset cd （vol. 1)  
   
GAME-Tibet POP/IOP dataset cd （vol. 2)

2、Keywords

Theme：Soil,Precipitation,Radiation,Temperature,Soil temperature,Soil moisture/Water content  
Discipline：Atmosphere,Terrestrial Surface  
Places：Tibetan Plateau   
Time：

3、Data details

1.Scale：None

2.Projection：

3.Filesize：35700.0MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：40.0 | - |
| west：75.0 | - | east：105.0 |
| - | south：24.0 | - |

5、Time frame:1997-08-01 16:00:00+00:00--1998-09-28 14:20:00+00:00

6、Reference method

References to data:

MA Yaoming. Asian monsoon experiment on the Tibetan Plateau (GAME/Tibet) dataset for global energy water cycle (1997-1998). A Big Earth Data Platform for Three Poles, doi:10.11888/Meteoro.tpdc.2701192011

References to articles:

Ma, Y.M., Menenti, M., Feddes, R., & Wang, J. (2008). Analysis of the land surface heterogeneity and its impact on atmospheric variables and the aerodynamic and thermodynamic roughness lengths. Journal of Geophysical Research: Atmospheres, 113.

7、Supporting project information

8、Data resource provider

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