CONSTRUCTION OF THE THERMAL INERTIA MAPPING SYSTEM (TIMS) FOR THE HYDROLOGIC ANALYSIS OF THE EARTH SURFACE USING SATELLITE DATA PART-1: TEMPERATURE ESTIMATION SYSTEM (TIMS-1)

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The purpose of this study is to construct a prototype database system for heat balance analysis (thermal inertia mapping system, TIMS) and to use it for thermal analysis and hydrologic evaluation of East Asian continent. In the first stage (Phase I) , we constructed following sub-systems (TIMS-1).

1) prototype database system for water temperature and GIS using attributes of monitoring station of water temperature, their data and World Databank II,

2) processing of remote sensing data, semi-automatic geographical correction: calibration of Infrared and visible channnel, rectification of satellite data, and visualization/mapping,

3) prototype database system for air temperature using attributes of meteorological monitoring station, air temperature of Automated Meteorological Data Acquisition System "AMEDAS" datafile,

4) integration of remote sensing, monitoring data and GIS: estimation of both temperature of the earth surface and atmosphere,

5) visualization and mapping of these temperature and configuration of the ground and its profile using ETOP5 worldwide digital terrain datafile.

We are going to construct a prototype database system for a micrometeorological data and main processing system of heat balance for thermal inertia mapping system (TIMS-2).