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Small Space Science Missions (2)

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THE KUAFU-B MISSION BASED ON A EUROPEANIZED SMALL SATELLITE BUS

**Abstract**

In the preparation for the ESA ministerial conference in November 2012, ESA and the National Space Science Centre under the Chinese Academy of Science (CAS) were investigating a cooperation in the frame of the planned Chinese KuaFu Space Weather mission.

This was seen as an unique opportunity to secure the availability of essential data required for Space Weather predictions, to address key scientific objectives as well as to further the European-Chinese-cooperation. The KuaFu Mission altogether consists of 3 spacecraft, a large (Chinese) KuaFu-A spacecraft in a halo orbit at the Sun-Earth L1 Lagrangian point, and two small identical KuaFu-B satellites which were candidates for delivery from Europe. KuaFu-B1 and KuaFu-B2 will be placed into identical orbits but phased 180 degrees apart allowing monitoring of both the North and South poles.

The main instruments on KuaFu-B are planned to be a wide Field Aurora Imager and a Wideband Imaging Camera. In addition, also a Dual Band UV Imager and some potential European participation in a Multi-pitch Modular Imager has been discussed.

The platform's main parameters are a 3-axis stabilized service module with 4 reaction wheels, a payload mass of approx. 22kg, payload power of 30W and propulsion for orbit transfer and AOCS control.

A good candidate as a platform for KuaFu-B is the German TET (TechnologieErprobungsTräger), which nevertheless needs some design adaptations. Kayser-Threde has reviewed its TET platform design taking into account system development, technology and operational aspects. Main critical areas have been identified. European Member States potential industrial involvement in such a Europeanized platform has been assessed.

The KuaFu-B mission has been postponed. Nevertheless, some funds have been allocated to "Space Weather" during the ESA ministerial conference in 2012, parts of which might be devoted to prepare a programme proposal for the KuaFu mission for the next ministerial conference, planned for Spring 2014.

The paper will describe the KuaFu-B Spacecraft design based on the German TET platform and the status of the project at the time of the conference.