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***The High Energy Particle Detector operational status
during 3 years of flight on board the China
Seismo-Electromagnetic Satellite***

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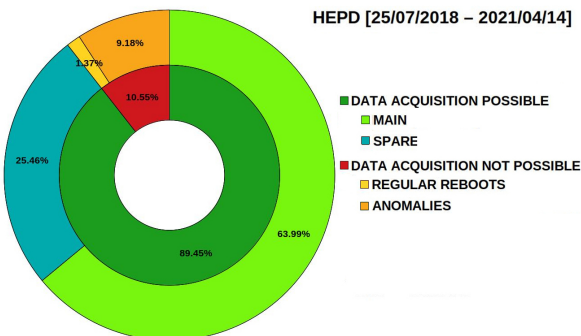
In-flight Operation and Status

The HEPD was launched on-board CSES on February 2, 2018 from the Jiuquan Satellite Launch Center (Inner Mongolia, China) and since July 28th 2018 HEPD has been set for regular data-taking mode, collecting about 14000 hours of acquisition.

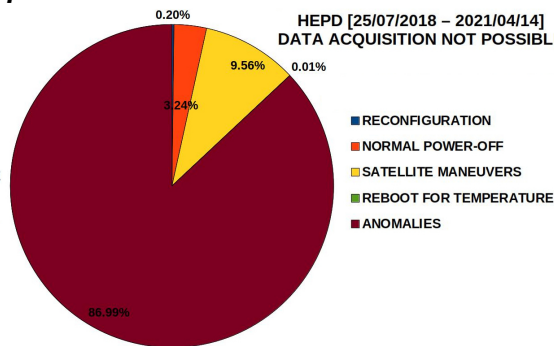
Since first HEPD power-on, The Control & Housekeeping system demonstrated to handle correctly detector activities and operations, allowing several changes of configuration and to perform recovery actions in case of anomalous behavior.

Post-commissioning phase - HEPD acquisition time and "downtime"

HEPD [25/07/2018 – 2021/04/14]



HEPD [25/07/2018 – 2021/04/14]
DATA ACQUISITION NOT POSSIBLE



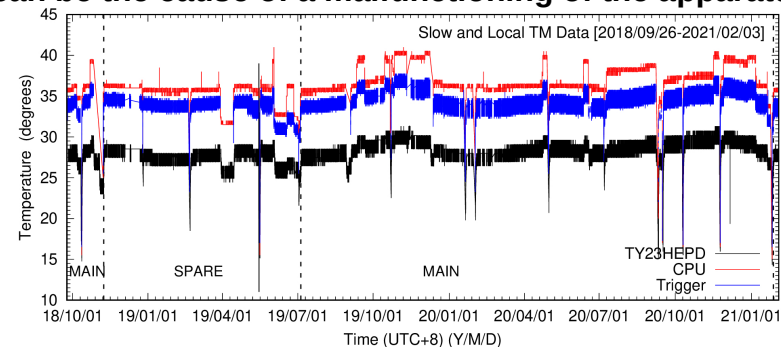
Post-commissioning operations:

- power-off procedure for satellite maneuvers or temperature issues (standard procedure)
- Detector reconfiguration (specific procedure)
- recover HEPD functionality from anomalous behaviors (standard reboot or specific procedures)

The Telemetry data:

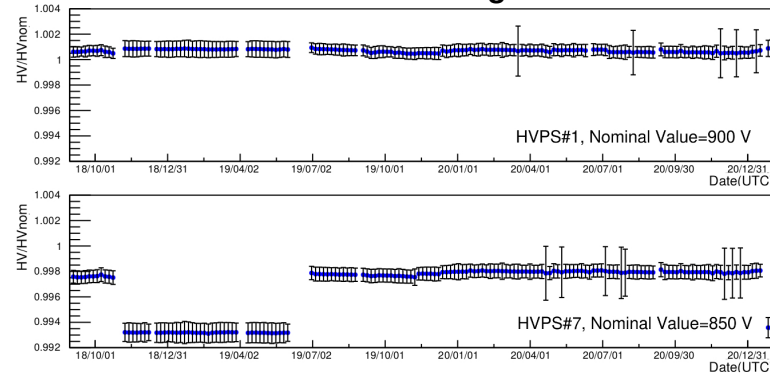
- identify anomalous behaviors and to investigate the possible source of malfunctions:
 - Partial/Total power-off of HEPD electronics due to LVPS issue
 - Anomalies related to Radiation issue
- check the stability of the electronics

Temperature: an abnormal increase can indicate or can be the cause of a malfunctioning of the apparatus



HVPS monitored values:

overall variation below 0.75% for HVPS biasing PMTs and below 1.5% for those biasing the Silicon sensors



Thanks for your attention