

THE gPHONE SOLAR CUBE

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GENERAL SETUP

- steel container: 2 x 2 x 2 m
- inside temperature control:
 - temperature shielding
 - ventilation
- 8 solar panels for energy input
- comprehensive monitoring of state conditions
- data transfer via double sim router up to LTE
- transportable with installation time of 3 days

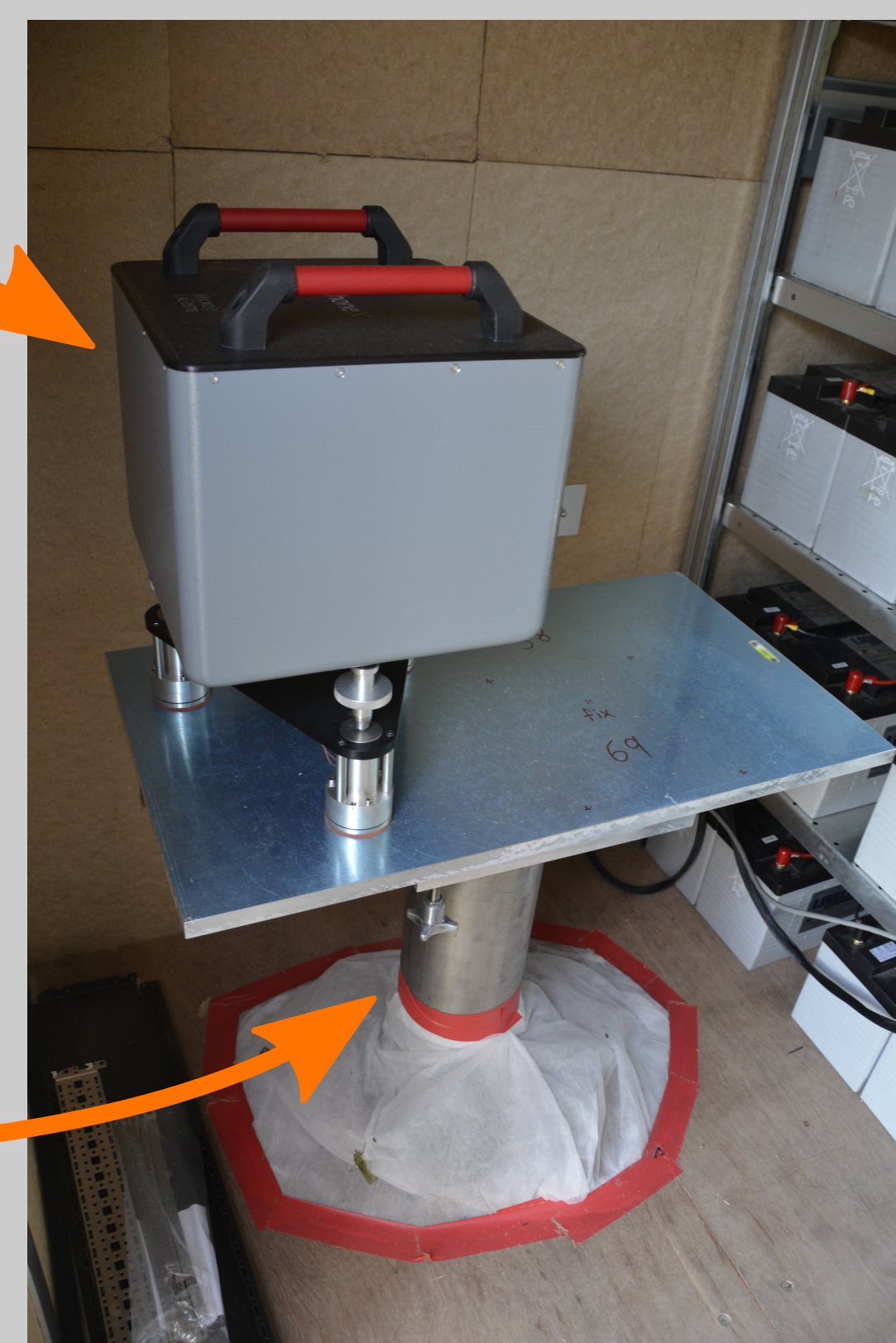
SENSORS



- wind speed & direction
- precipitation
- net radiation
- temperature
- relative humidity
- air pressure (inside)
- cosmic ray neutrons (soil moisture)

GRAVITY

- gPhoneX141
- resolution: 0.1 μGal
- precision: 1 μGal
- drift: < 16 $\mu\text{Gal} / \text{day}$
- power needed (avg): 100 W
- thermal tilt compensation
- new pillar design:
 - easy and fast setup
 - removable
 - can host gPhone + 2 CG-6 gravimeters



MOBILE CONTAINER

ENERGY SELF-SUFFICIENT

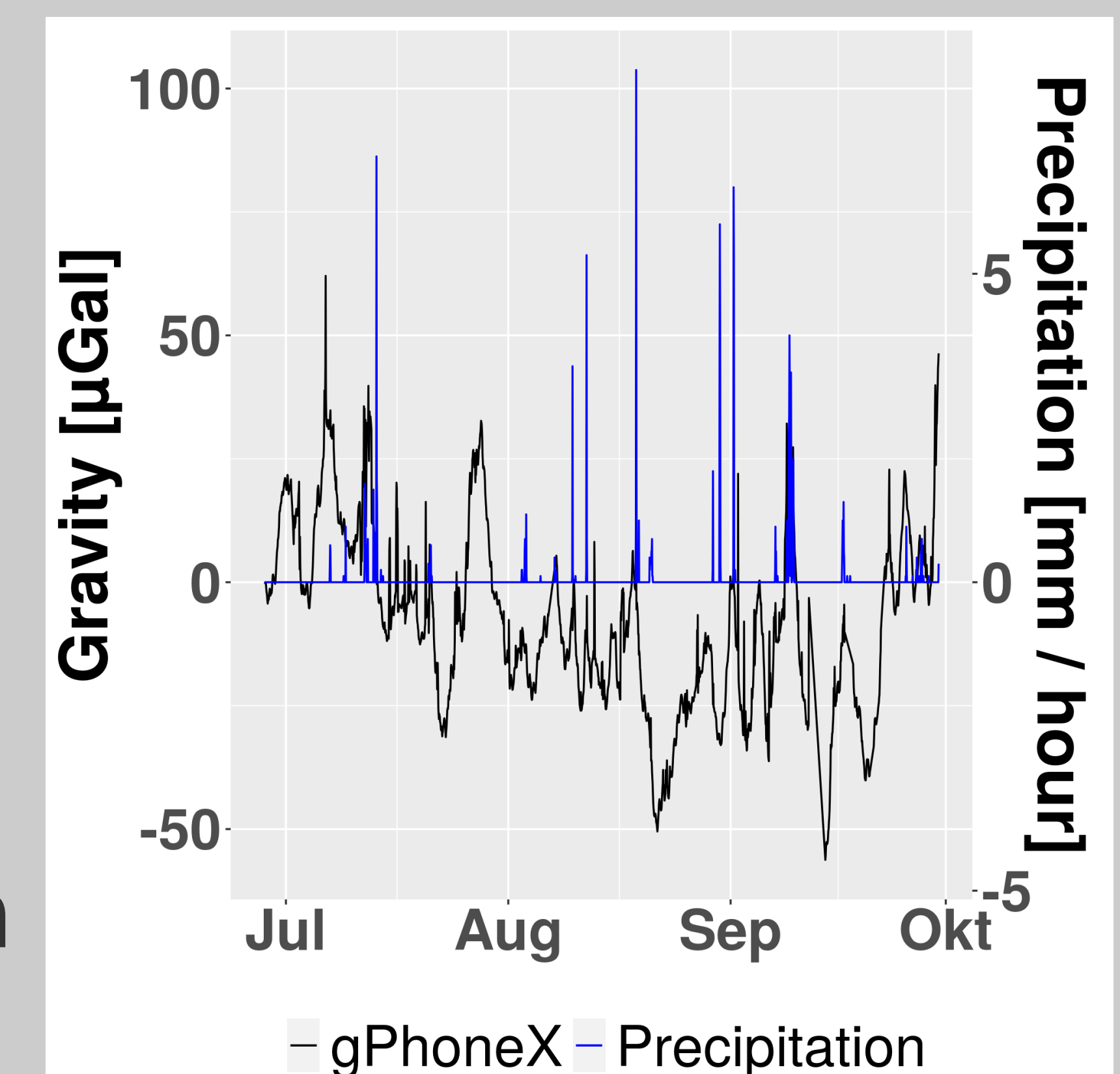
MONITORING GRAVITY

MONITORING CLIMATE

FOR REMOTE FIELD SITES



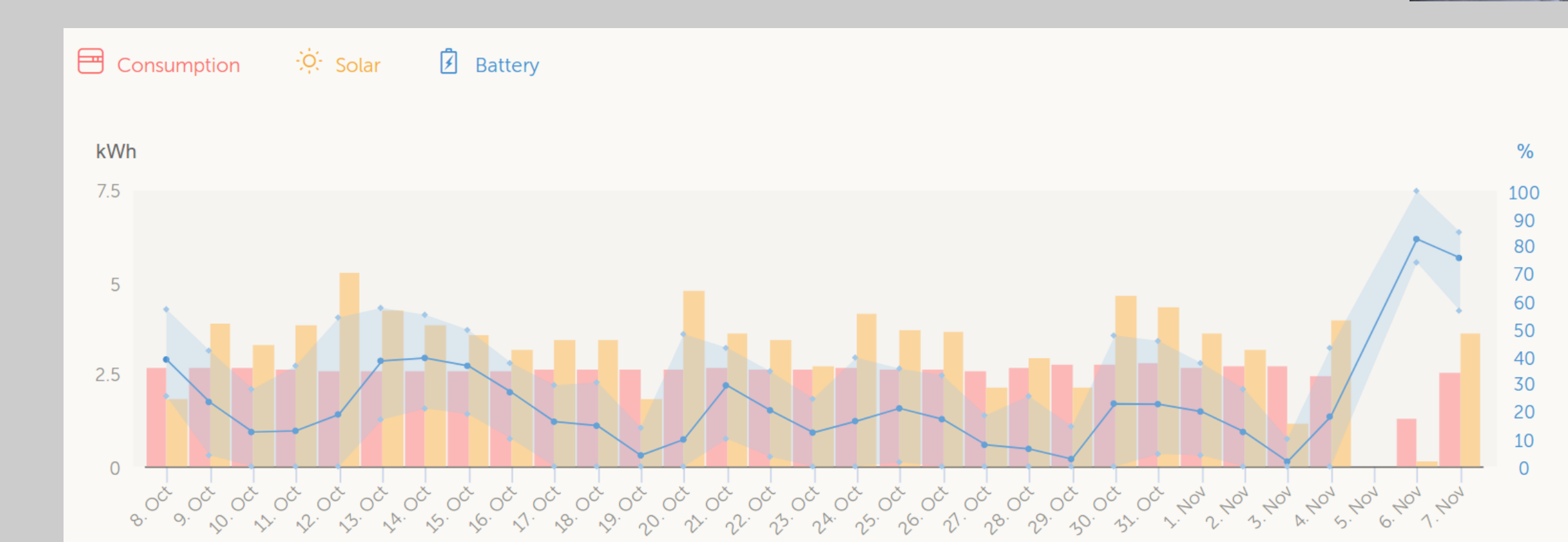
DATA



- comprehensive data storage (postgres) and reduction concept
- so far no independent correction of instrumental drift
- high stability of pillar
- first use as reference station for CG-6 field campaigns

ENERGY

- total power demand (avg): 112 W
- solar input >> 112 W (up to end october)
- solar panels: 8 x 365 W = 2920 W
- energy storage: 16 x 105 Ah batteries
- backup generator to bridge power gaps



PURPOSE

- reference gravity station for field campaigns
- long-term monitoring of water storage changes
- deployable at any remote field site
- gravity network of 4 containers in Germany
- investigating flood generation processes (MOSES)
- understanding larger scale water storage dynamics (GRACE-FO)