

### ARTEMIS Interplanetary-Shock List

- Interplanetary shocks in the list are observed by the two ARTEMIS spacecraft, THB and THC, when they are in the solar wind and/or in the magnetosheath. Cases when the spacecraft is in the lunar wake are also included.
- The listed shocks are also confirmed by observations from Wind, ACE, SOHO and the ground magnetograms.
- In the column of Probe, THB means a fast forward shock detected by THB click which a THB summary plot around the shock opens up through the link to the THEMIS website; THB(FR) presents a fast reverse shock observed by THB; THB(sh) presents an fast forward shock observed by THB in the magnetosheath; THB(wk) is for the shock effect observed by THB in the lunar wake.
- The shock time in UT is identified using ARTEMIS/FGM data.
- Spacecraft positions are the position when a shock is recorded and are given in GSE and SSE in  $R_e$  and  $R_m$ , respectively, using  $R_e = 6374$  km and  $R_m = 1737$  km. By clicking the X component in GSE, an orbit plot in GSE opens up through the link to the THEMIS website, on which an additional click leads to the orbit plot in SSE.
- In the column of Data Mode, F is for fast survey during which fgm\_fgl is available with 0.25-sec resolution; S for slow survey and only fgm\_fgs is available with 4-sec resolution; FS, PB, WB presents fast survey with particle and wave burst mode during which fgm\_fgh is available with a resolution of 128 samples per second.
- Shock parameters, such as the shock normal, ThetaBn, shock speed, shock Mach number, and shock criticality are given in Table 1, in Zhou et al. [2020]. The analyses use the method discussed in Zhou and Smith [2015].

Zhou, X.-Y. and E.J. Smith, Super-Criticality of ICME and CIR Shocks, *J. Geophys. Res. Space Physics*, 120, doi:10.1002/2014JA020700, 2015.

Zhou, X.-Y., Gedalin, M., Russell, C. T., Angelopoulos, V., & Drozdov, A.Y., Energetic ion reflections at interplanetary shocks: First observations from ARTEMIS. *J. Geophys. Res. Space Physics*, 125, e2020JA028174. <https://doi.org/10.1029/2020JA028174>, 2020