



## **Tools for THOR: Wave analysis**

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The THOR mission goal is to reveal particle acceleration and heating mechanisms in turbulent space and astrophysical plasmas. Understanding the properties of waves and turbulent fluctuations plays a key role in revealing the acceleration and heating processes. An extensive set of field and particle experiments are developed and mounted on board the spacecraft. Correspondingly, many of the data analysis methods are being prepared, some as a heritage from the past and the current spacecraft missions and the others as new analysis methods to maximize the scientific potential of the THOR mission. It is worth noting that the THOR mission performs not only single-point measurements but also multi-point measurements by interferometric probe technique. We offer a set of analysis tools designed for the THOR mission: energy spectra, compressibility, ellipticity, wavevector direction, phase speed, Poynting vector, helicity quantities, wave distribution function, higher order statistics, wave-particle resonance parameter, and detection of pitch angle scattering. The emphasis is on the use of both the field data (electric and magnetic fields) and the particle data.