

Standard Process for Rapid Analysis of TESS Data

TESS GSFC Project Office
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When extraordinary transient events occur within the TESS field of view, members of the TESS Science Operations Center (SOC) are permitted, following the process described in this document, to perform basic analysis on data that are not yet public. Extraordinary transient events are those of broad scientific interest where TESS provides unique or timely information relevant for planning follow-up observations. Examples include gravitational wave signals or gamma-ray bursts with poor sky localizations and/or where the optical counterpart is expected to be bright, such as GRB 230307A and GRB 241030A.

The Project Office estimates that analysis conducted under this policy can provide the scientific community with actionable information 12-48 hours sooner than when TESS data become publicly available.

The SOC shall notify as soon as possible the TESS Project Scientist and the TESS Principal Investigator of intentions to pursue basic analysis. **Analysis shall not delay delivery of files in the appropriate format to the SPOC or to the MAST.** The basic analysis should be limited to locating the sky position of the transient event and extracting any additional information that would be valuable for follow-up observations.

Analysis shall be communicated to the scientific community as quickly as possible via a broadly and publicly accessible bulletin such as the General Coordinates Network (GCN) system or the Astronomer's Telegram. The listed author of such a bulletin shall be "the TESS Mission" to ensure no credit is unfairly accorded to individuals for having early access to nonpublic data. In the event of a lack of consensus regarding the analysis, the bulletin should capture all discussion that might be relevant for follow-up observations; there shall not be multiple bulletins. Bulletins should include details about when the data are expected to be made publicly available at the MAST.

TESS project personnel may only pursue follow-up proposals using information from not-yet-public TESS data after the release of a public bulletin that includes the information. Once either the SPOC FFI or TICA products are publicly available, TESS project personnel are permitted to perform additional scientific analyses, propose follow-up observations, and publish results as they see fit. All contributors to the public bulletin shall be invited to participate in any such additional efforts led by TESS project personnel.