

## **Swift Observations of Everything (or How I Learned to Stop Worrying and Love TOOs)**

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The Neil Gehrels Swift Observatory, aptly shortened to Swift, is capable of performing many hundreds of observations per day, thanks to its rapid slewing capabilities. In addition its agile and responsive operations team has made us to the go-to observatory for rapid response transient observations. In the era of Multi-Messenger Astrophysics, this has extended to performing fast turn around and extensive tiling of large LIGO error regions, in to search for kilonovae counterparts, and Swift the only current space-based observatory capable of such tiling observations. The arrival of ground based sky scanning transient finders, e.g. ASAS-SN, ZTF, has provided a large amount of Target of Opportunity requests for Swift. In 2018, Swift received a record 1389 TOO requests, and is projected to receive >1600 in 2019.

In this talk I discuss the ways in which we have revolutionized Swift operations in order to handle these challenges, including new observing modes for tiling, automatic observing plan generation and extensive leveraging of automation in order to cope with these issues with a relatively small team.

In addition I also discuss future plans to deal with the expected further onslaught of TOOs from observatories such as LSST. This will include a discussion of the recently approved initiative to create a TOO API for automatically requesting and tracking Swift TOO requests, in order to better aide collaboration and coordination with other observatories. In addition I will briefly discuss Swift plans to support the VO standards proposed to aide cross-observatory coordination, and archive searching.