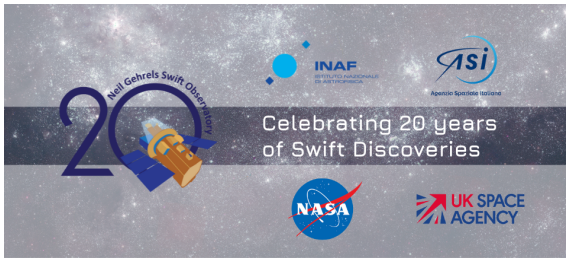

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Celebrating two decades of SWIFT and H.E.S.S.: A joint history of Gamma-Ray Bursts follow-up

Tuesday 25 March 2025 14:07 (1 minute)

Gamma-Ray Bursts (GRBs) are among the most energetic phenomena in the universe, acting as excellent astrophysical laboratories in which to study extreme processes. For the last twenty years, not only has the SWIFT telescope immensely contributed to the field of GRB detection but it has also allowed for follow-up observations thanks to its rapid and precise localization. During this period, the H.E.S.S. (High Energy Stereoscopic System) observatory has played a crucial role in the search for and detection of Very High-Energy (VHE) gamma-ray counterparts from SWIFT public alerts.

This presentation will give an overview of the H.E.S.S. GRB follow-up program, describing the strategy we use to maximize the opportunity of detecting a VHE counterpart from a trigger alert distributed by space-based telescopes. To illustrate the latter, we will present a recent GRB ToO observation detailing the observation strategy and including every step followed, from the reception of the alert up to the end of the survey. Key results of the subsequent analysis, like significance, excess maps, and differential upper limits, will be presented as the final scientific outcome. Furthermore, celebrating the joint effort for a multi-wavelength picture of GRBs, we will present a statistical study of the H.E.S.S. follow-up observations of SWIFT-detected GRBs over the past two decades. Elements like observation and detection rates, relevant results, as well as possible opportunities for future follow-ups and analysis, will take part in this summary.

The presentation will highlight the importance of the coordination between space-based telescopes and ground-based observatories by showing how SWIFT public alerts and their quick follow-up by H.E.S.S. have significantly improved the scientific return of the field.

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