Recent results in TeV gamma-ray astronomy with H.E.S.S.

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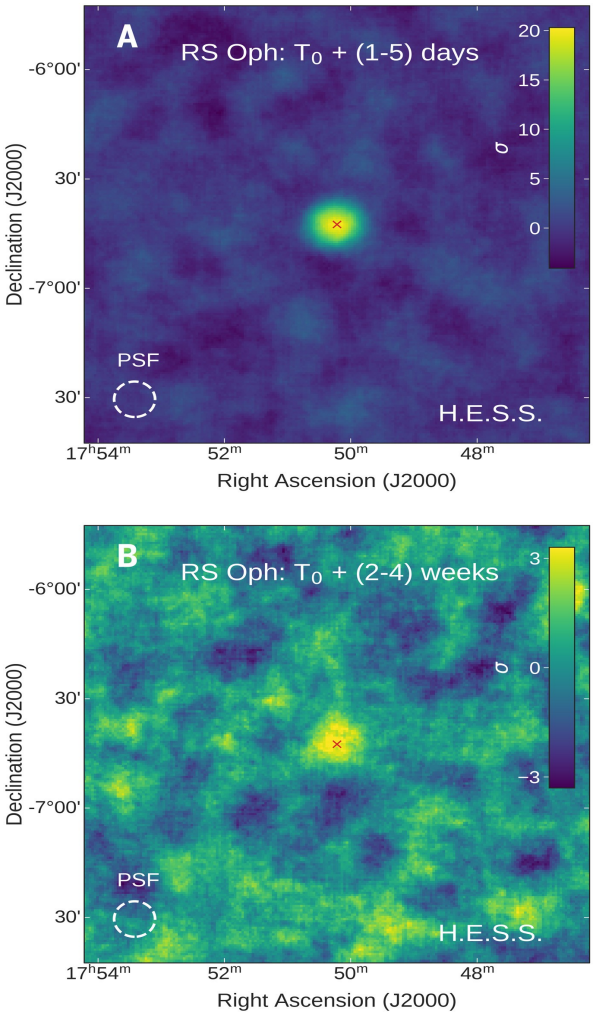
The High Energy Stereoscopic System (H.E.S.S.) has revolutionised TeV gamma-ray astronomy over the past two decades. In this presentation, I will outline some of the recent discoveries from H.E.S.S. from the past year or so as well as future plans for the facility and multiwavelength linkages.

Some of the recent discoveries include - *First-time detection* of TeV emission from a recurrent nova, multi-day TeV emission from a gamma-ray burst, detailed spectral and spatial studies of PeVatrons (extreme particle accelerators in our galaxy), locating the TeV emission from Centaurus-A, and pulsed gamma-ray emission up to multi-TeV energies from a nearby pulsar.

The figure here illustrates the transient gamma-ray emission detected from the recurrent nova RS-Oph [1] around the time of its August 2021 outburst. It shows the TeV gamma-ray image from RS-Oph integrated over the first 5 days, and then over the next couple of weeks, revealing the strong decrease in gamma-ray flux. The detection of TeV gamma rays confirms the presence of multi-TeV particle acceleration in a white-dwarf accretor.

[1] F. Aharonian et al. (H.E.S.S. Collab.) Science **376**, 77-80 (2022).



Significance maps derived from the H.E.S.S. >100-GeV gamma-ray observations for the early (A) and late (B) phases of the RS Oph 2021 outburst. T_0 is the time of peak optical emission, modified Julian day 59435.25. The dashed white circles indicate the H.E.S.S. point spread function (PSF).