Search for TeV emission from GMC with H.E.S.S.

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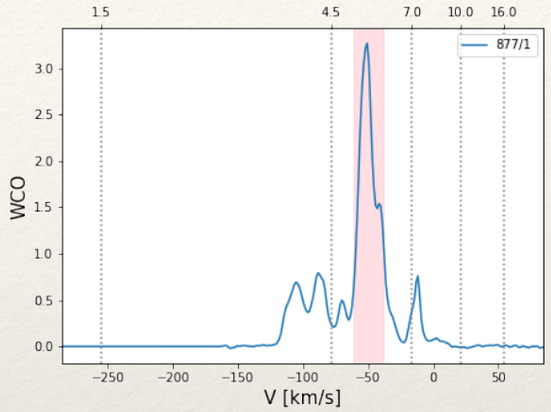
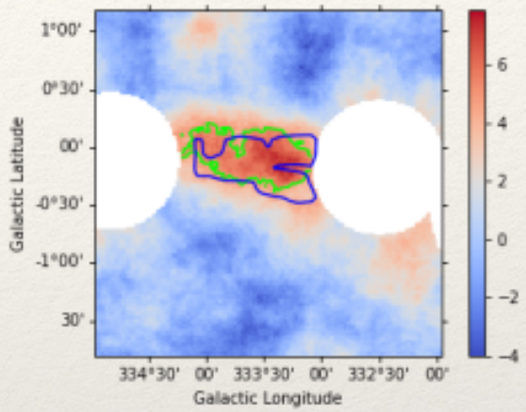
- Aim:
  - To probe the CR distribution inside passive molecular clouds using VHE gamma-rays
- Challenge:
  - Need to distinguish between the hadronic background, the large scale diffuse emission and the emission from the cloud
- Method:
  - Implement a simultaneous 3D FoV likelihood technique using dust templates to model the cloud spatial profile
- Results:
  - Significant excess in the direction of cloud #877
  - The gamma-ray contours trace the contours of the cloud;
  - Spectrum agrees well with the extrapolation of the Fermi spectrum to TeV energies
    - Significant excess and hardening over the expected local emission: Differential cosmic-ray proton number density inside the cloud ~ 5 times the local density (at 1 TeV)





Significance map of the 877 region. In green, the 5-sigma H.E.S.S. significance contours, in blue, the contours of the cloud