Sanity checking the FAS results by comparison to VI-derived characteristics

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RMI

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Solar-Terrestrial Centre of Excellence

Outline

The Net-TIDE network

FAS TID detection 2017-04-21

On the Dourbes–Ebro link:

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TID detection at 2017.04.21 19:48:40 [45.5N 2.4E
283 km]: A=15.45%, period=100.0 min,
wavelen=2465km; Propagation: 410 m/s, Az= 246.9
deg/CW; LOW Q Ray: EB040<-DB049 <1243> km,
E-cut=1228 km [1116]
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On the Pruhonice–Juliusruh link:
```
TID detection at 2017.04.21 19:47:35 [52.3N 14.0E
217 km]: A=33.00%, period=140.0 min,
wavelen=1533km; Propagation: 182 m/s, Az= 121.3
deg/CW; LOW Q Ray: JR055<-PQ052 <740> km,
E-cut=628 km [571]
```

DB049−EB040

From the true height contour plots, the minima of the waves can de determined at 21:10 UT in Dourbes and 21:35 UT in Roquetes. The link length is 1082 km, so the velocity would be 721 m/s if the TID travelled along the link.

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The FAS technique gave a speed of 410 m/s, assume this is correct. Then the projection angle is found to be $\theta = 55.34°$. The azimuth of Roquetes as seen from Dourbes is $\alpha = 198.68°$, giving a propagation direction of $\varphi = 254.02°$ (FAS direction $\varphi = 246.9°$).

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Conversely, assume the FAS azimuth $\varphi = 246.9°$ is correct. Then $\theta = 48.22°$, and $v = 480$ m/s, 17% higher than given by FAS.

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The end, thank you!