THEMIS eclipse spin-period models: Theory and TDAS implementation

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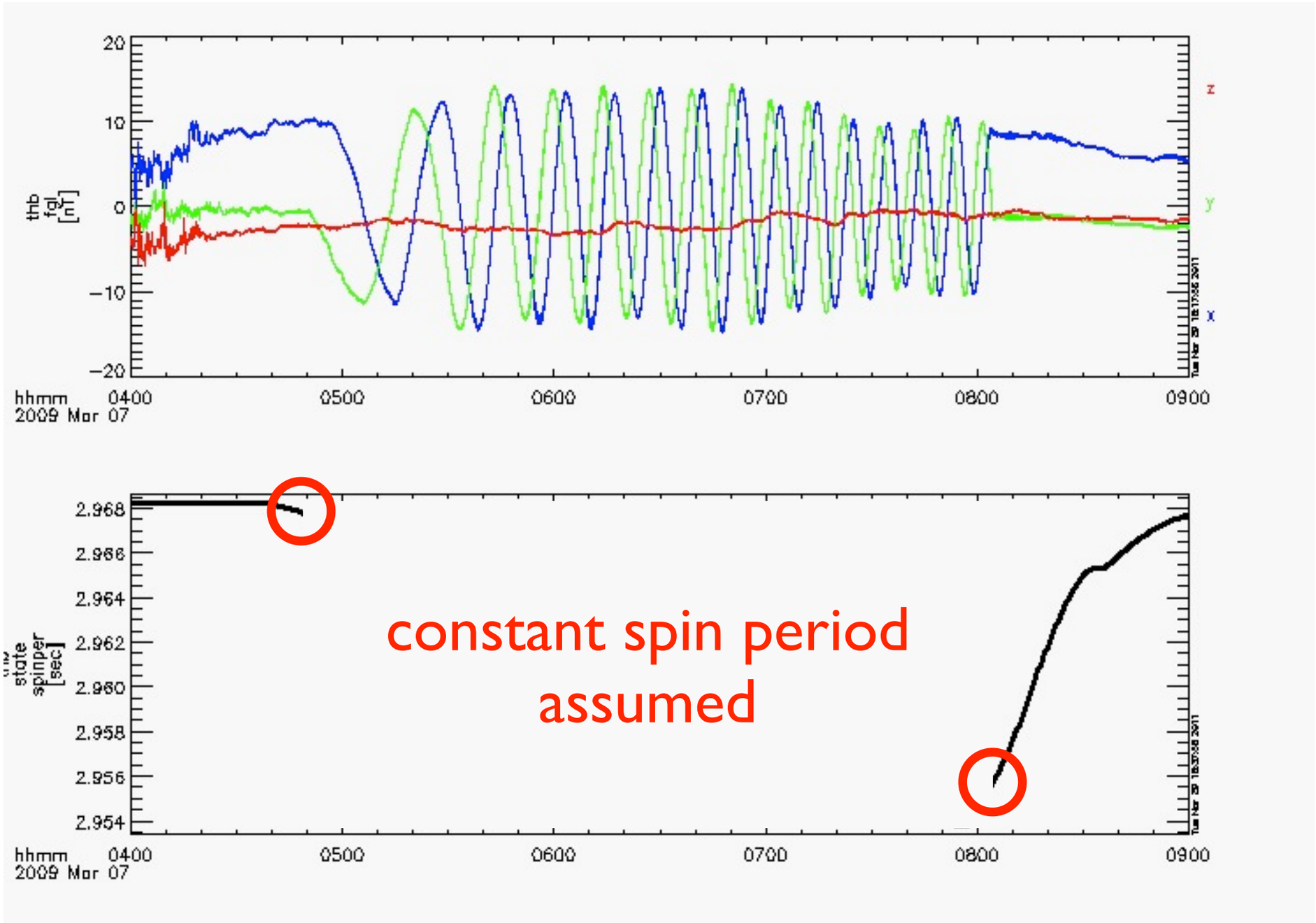
What you might have observed...

DSL

spin period

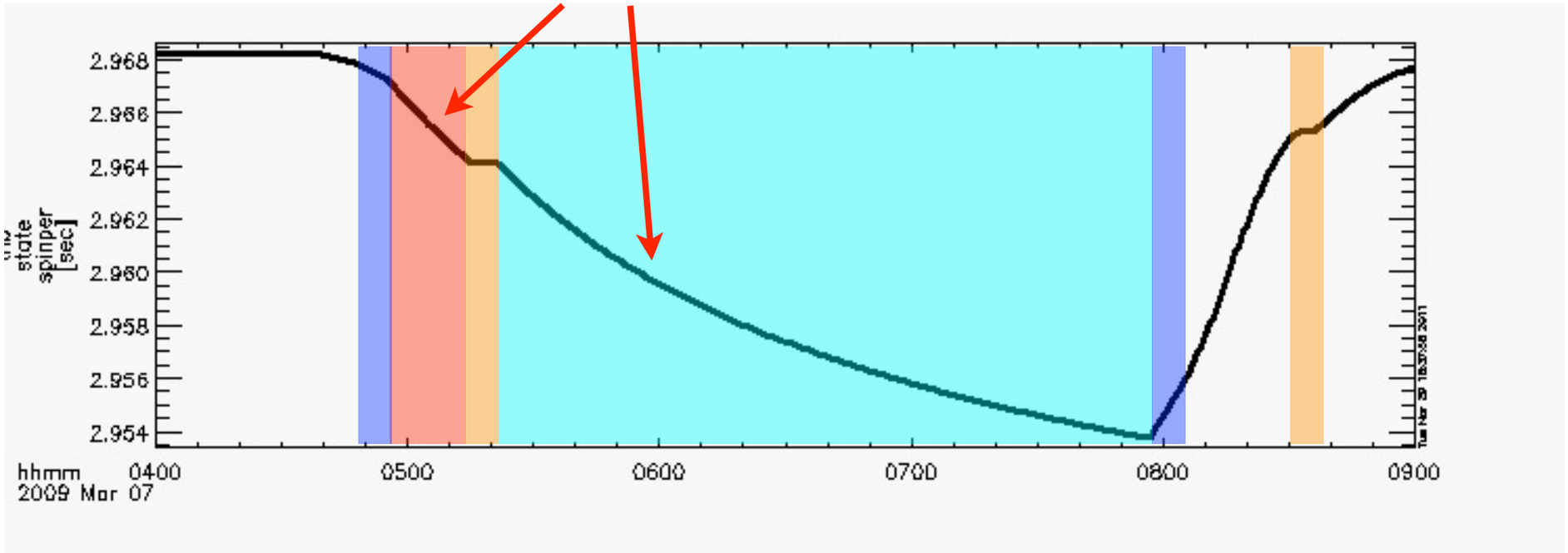


Eclipse spin period model

- short model (comparison: near Earth data - Earth field model)
- long model (assumption: lobe field direction constant)
- shoulder / hump
- connections

$$\Delta T = (c_1\ t + c_2)^{-2/3} + c_3$$

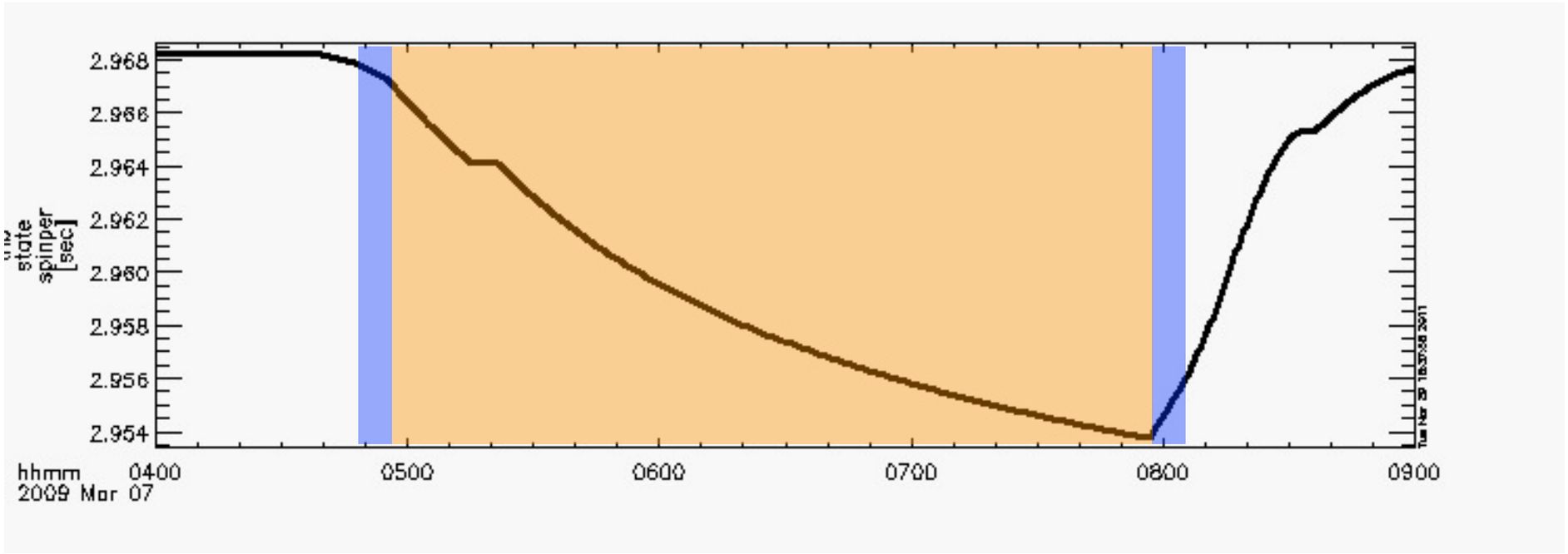
spin period



Application of the model

- Linear trend added to model:
  phases have to match after eclipse
- Linear connections:
  continuous spin period

spin period



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From theory to application...

```
THEMIS> timespan, '2009-03-07'
THEMIS> thm_load_fgm, probe='b', /get_support_data
THEMIS> tplot, 'thb_fgl', trange=time_double(['2009-03-07/04:00:00', '2009-03-07/09:00:00'])
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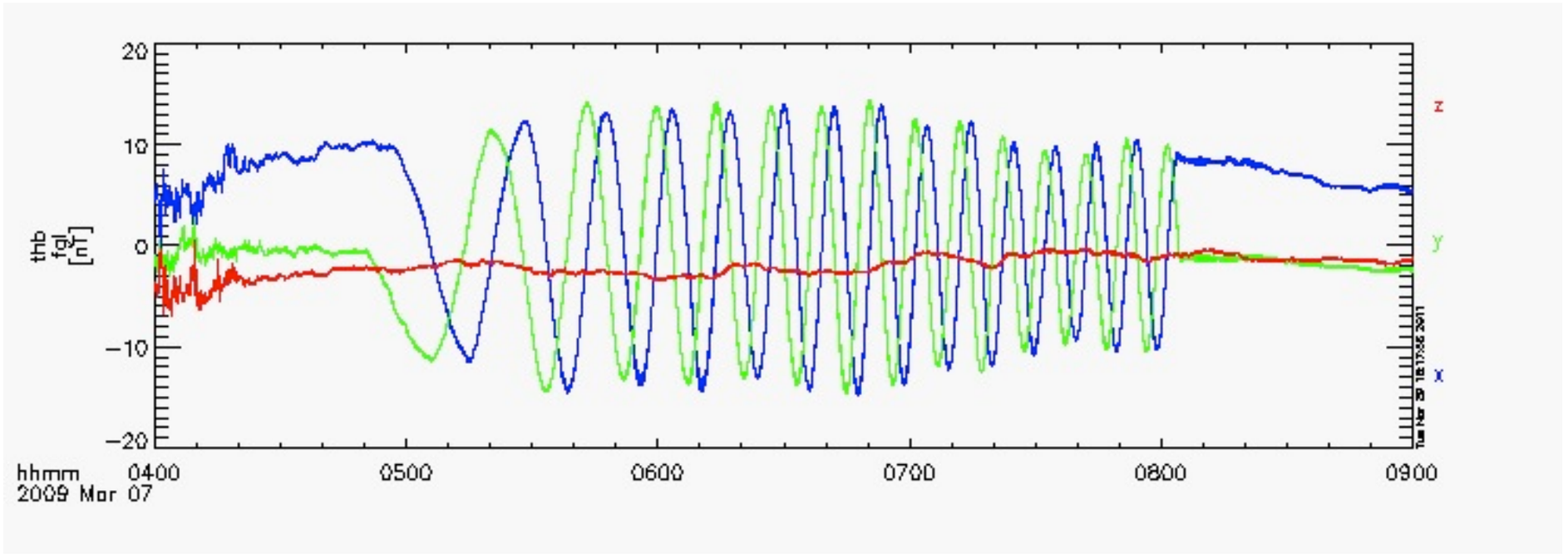

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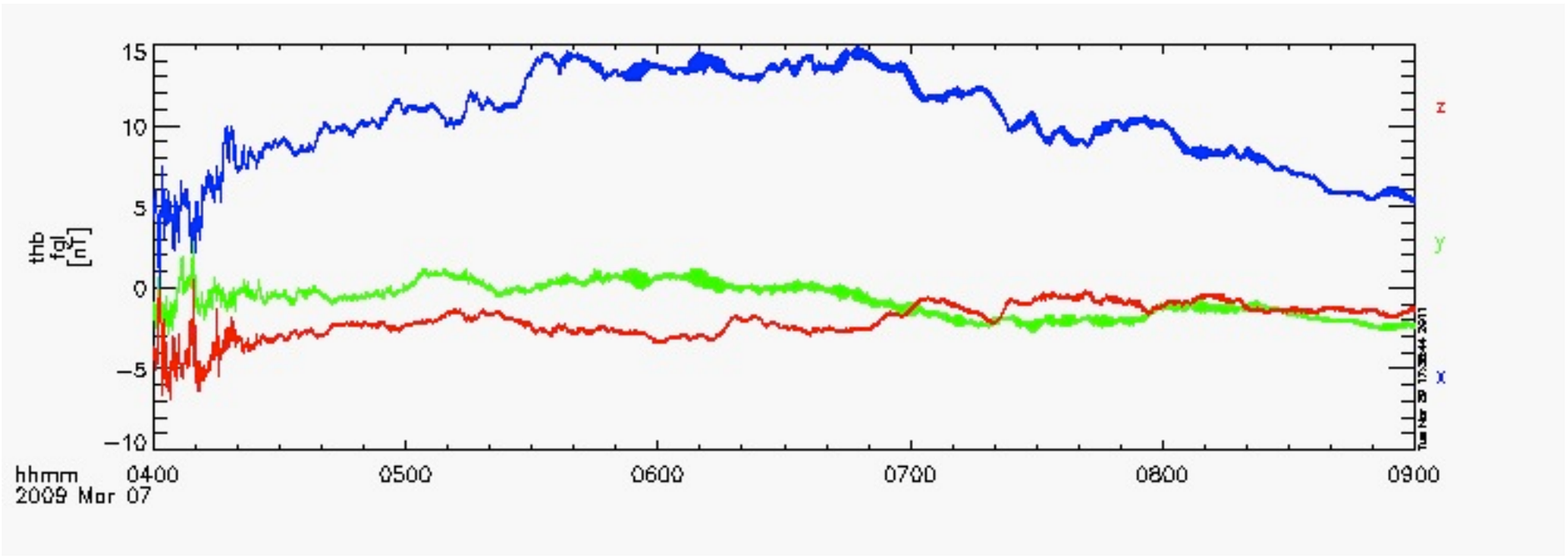
From theory to application...

THEMIS> timespan, '2009-03-07'

THEMIS> thm_load_fgm, probe='b', /get_support_data, /use_eclipse_corrections

THEMIS> tplot, 'thb_fgl', trange=time_double(['2009-03-07/04:00:00', '2009-03-07/09:00:00'])



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Summary

- Our work:
  - Determined models
  - S/C dependent
  - Updates (example: ARTEMIS probes after insertion)

- Your work:
  - Add one keyword

  - Georgescu et al., *Modelling of spacecraft spin period during eclipse*, Ann. Geophys., 29, 875–882, 2011.