Sensitivity of model outputs to quality of input data

: CTIPe driven by AMIE_ASTRA
## Model Setting

<table>
<thead>
<tr>
<th>Model Setting ID</th>
<th>Input data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 5_CTIPE*</td>
<td>Magnetometers, SuperDARN, and DMSP</td>
</tr>
<tr>
<td>2 5a_CTIPE*</td>
<td>Magnetometers and SuperDARN</td>
</tr>
<tr>
<td>3 5b_CTIPE*</td>
<td>Magnetometers</td>
</tr>
</tbody>
</table>
Joule Heating along DMSP tracks

Observation:
- DMSP

Model runs:
- 5_CTIPE : WMSD
- 5a_CTIPE : WMS
- 5b_CTIPE : WM

Plot: CCMC
Neutral density at the CHAMP location

Observation:
- CHAMP.Nden.2006.348.dat

Model runs:
- 5_CTIPE
- 5a_CTIPE
- 5b_CTIPE

Plot: CCMC
Tn at 250 km in high latitude (Resolute Bay)

Tn from observatory file: Resolute_Bay_N.Tn.2006.348.dat

Observation:
- Resolute_Bay_N.Tn.2l

Model runs:
- 5_CTIPE : WMSD
- 5a_CTIPE : WMS
- 5b_CTIPE : WM

Plot: CCMC
Ne at 300km in high latitude

Ne300 from observatory file: Sondrestrom.Ne300.2006.348.dat

Observation:
- Sondrestrom.Ne300.2

Model runs:
- 5_CTIPE: WMSD
- 5a_CTIPE: WMS
- 5b_CTIPE: WM

Plot: CCMC
MLT distribution at different activity levels

Event:
14-16 December 2006

✈️ Ovation Prime, AMIE perform better in capture MLT features
model performance at fixed MLT

- Equatorward expansion during geomagnetically active times (high Kp)
- Most-equatorward expansion at Dusk leads that at Dawn