HiT&MIS: High Throughput and Multi Slit Imaging Spectrograph
- High spectral resolution (up to 0.1 nm) [1]
- Imaging six prominent dayglow/auroral emission lines simultaneously and round the clock
- Dynamic range for day and night time observation

Wavelength Selection and order sorting
- Entrance filters: four narrow narrow(± 5 nm) spectral bands allowed
- Echelle grating placed in near Littrow configuration
- Exit filter mosaic: Combination achieves order sorting
- Higher diffraction orders (~24 to 53) selected

Science
- Each emission feature probes different phenomenon (Table 1)
- Each emission features occur at different altitude (Fig. 5)
- Spectral features intensity: energy at the source
- Two instrument being developed: 2D tomography possible similar to Semeter, et al. 1999 (see Fig. 5) [2]
- Simultaneous observation: upper atmospheric dynamics, information on energetics, coupling, etc. [3]

Instrument Layout

Round the clock Observation
- Dayglow observation possible at high resolution

Implementation plans
- Two HiT&MIS instruments have been developed
- Discussion underway to deploy the instruments in Sweden: round the clock observation, two different locations in conjunction with BARREL team
- Data will be assimilated to other space based instruments: LITES, RAIDS (see Geddes et al. : ITIT-06) and ground based: HITIES, HIRISE and BU all sky imagers

References:

This work is supported by the NSF Grant AGS1315354