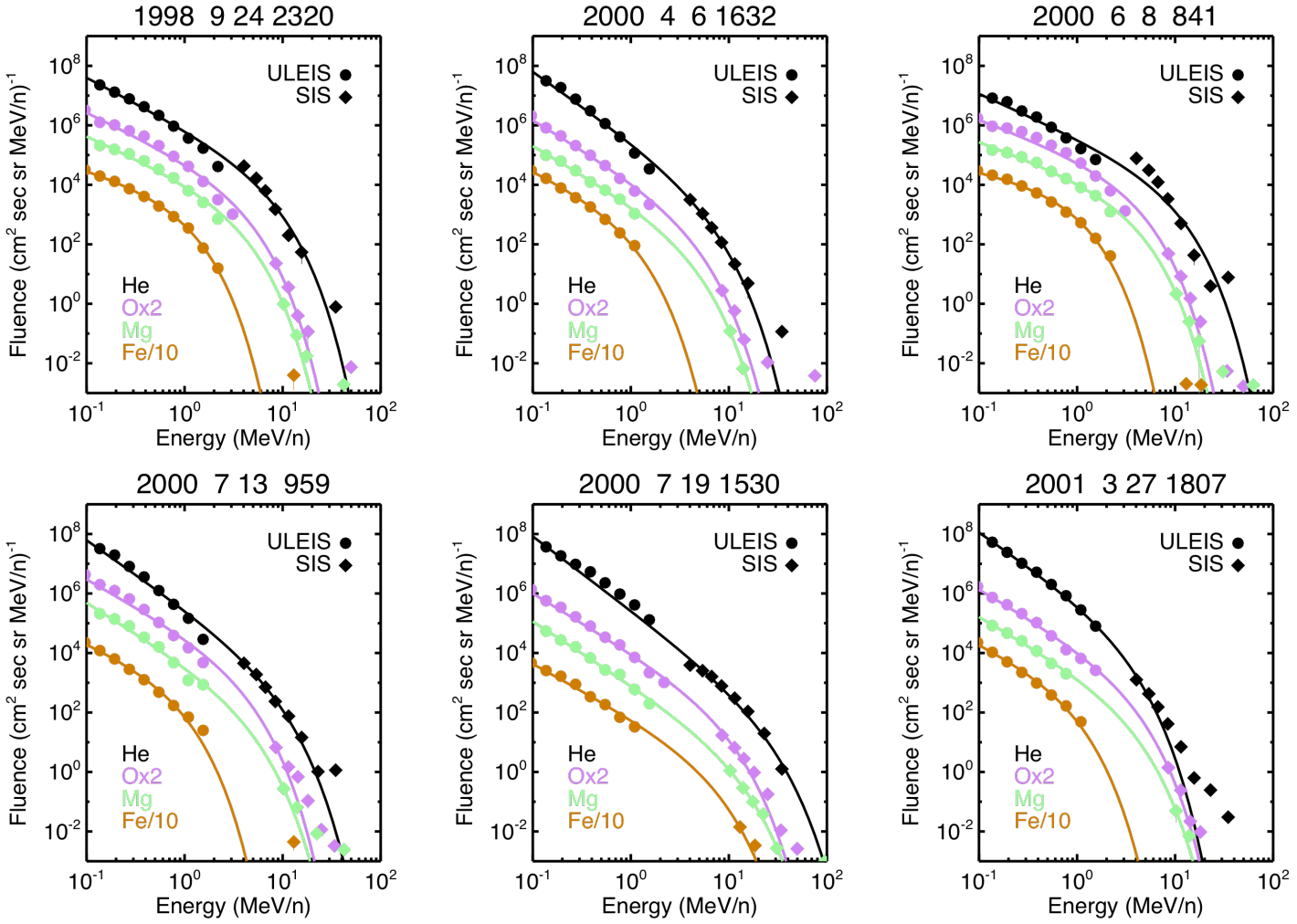
C.M.S. Cohen
R.A. Mewaldt, G.M. Mason, J.C. Kasper,
I.G. Richardson, M.A. Lee, G.C. Ho

FINDING ORDER IN ESP EVENTS?

INTRODUCTION

- Spring 2008 AGU Meeting: ESP spectral properties
  - Selected events from Richardson list
    - No CIRs, No SEP injections, Valid parameters
    - 30 shocks
  - Examined ULEIS hourly O intensities
    - Selected events with clear 0.5 MeV/n peak within 2 hrs. after shock passage
    - 15 events
  - Combined ULEIS+SIS spectra
    - Fit with E-R form to get break points for He-Fe
    - Examined Q/M dependences
    - Examined E_{break}(O) dependence on shock parameters

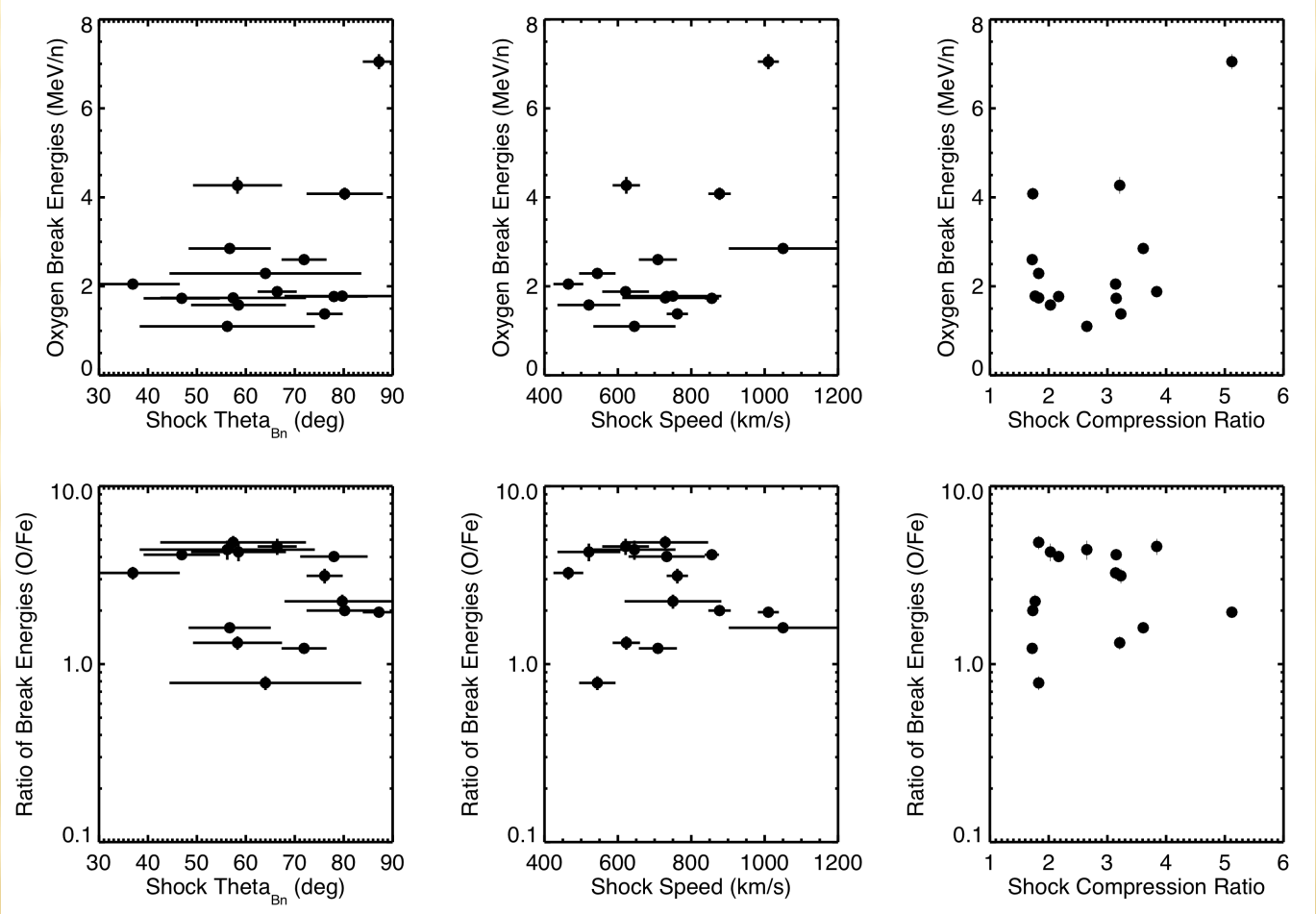
AGU RESULTS



- Issues
  - ULEIS-SIS mismatch
  - Missing SIS data
  - 'Bad' fits = pre-event intensity
- Resolutions
  - ULEIS corr. for saturation
  - ??
  - Attempt to subtract pre-event intensity

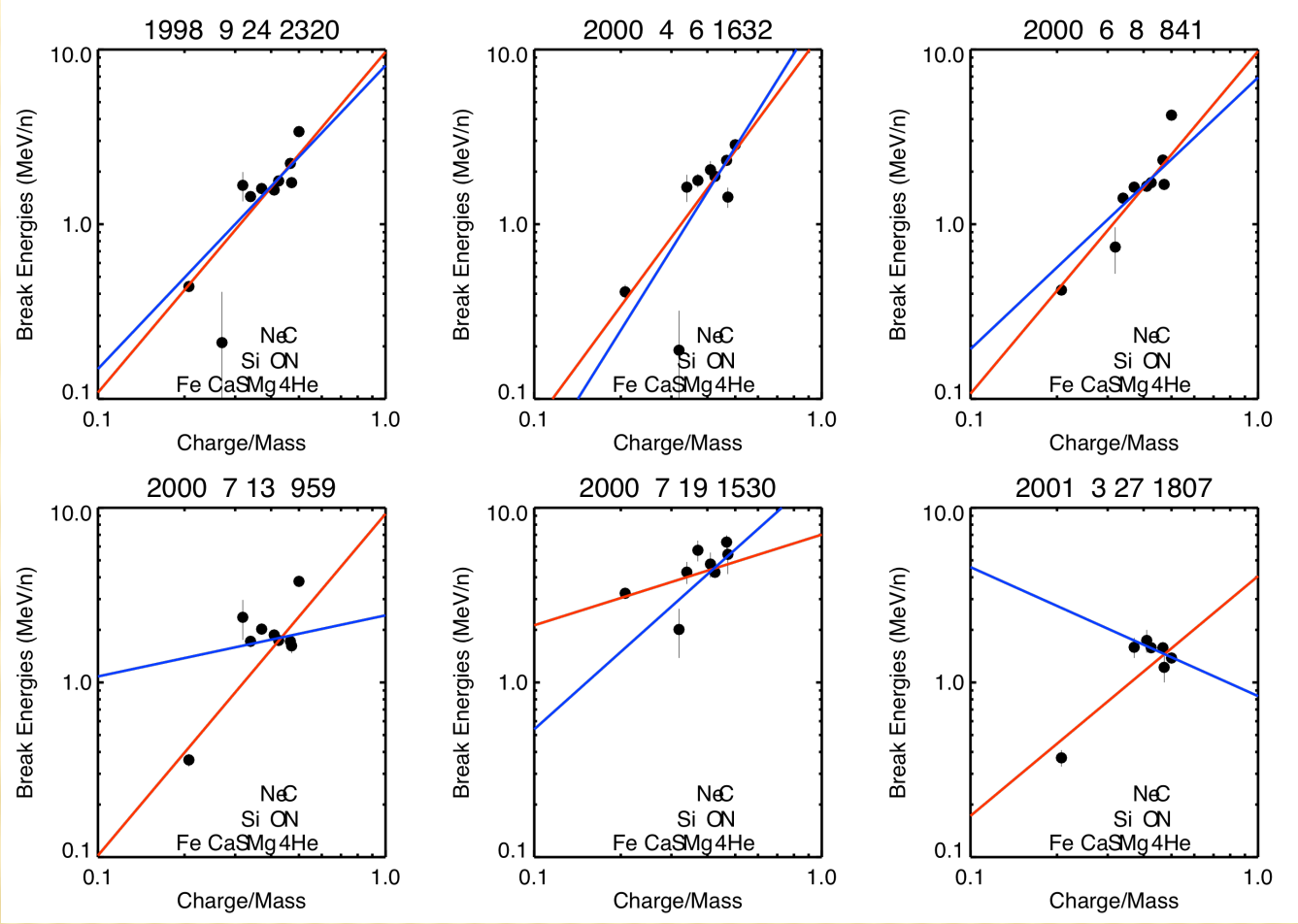
But for the AGU, I decided to press on…

OXYGEN E_{BREAK} VS SHOCK PARAMETERS



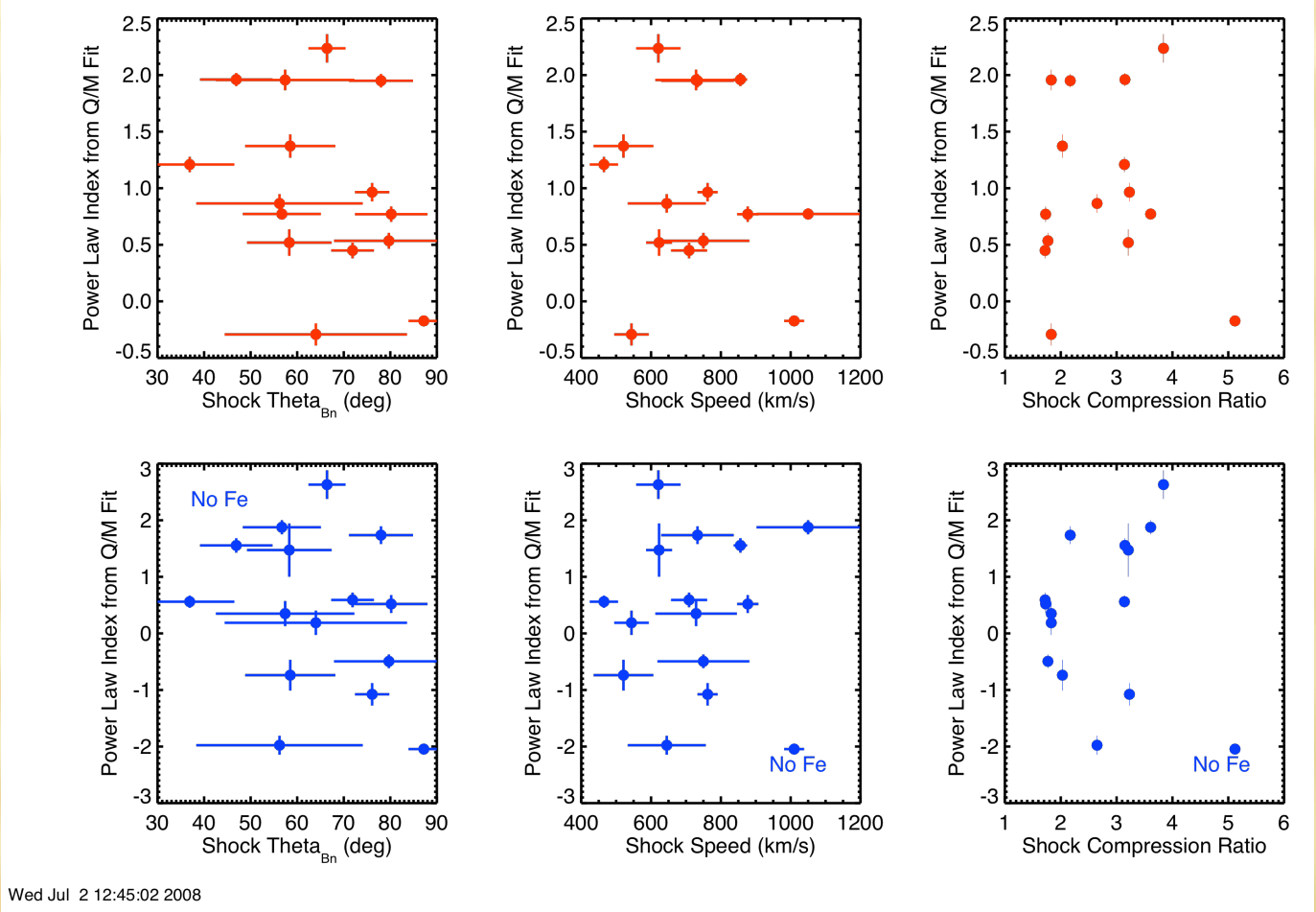
No Correlations

Q/M DEPENDENCES



Not systematic, Fe sometimes different

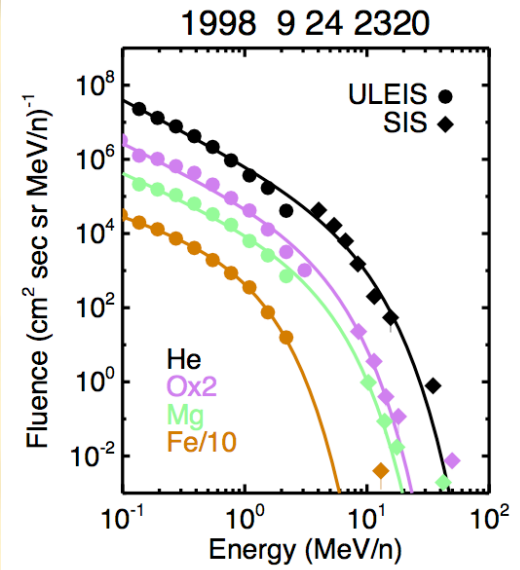
Q/M POWER-LAW INDEX CORRELATIONS

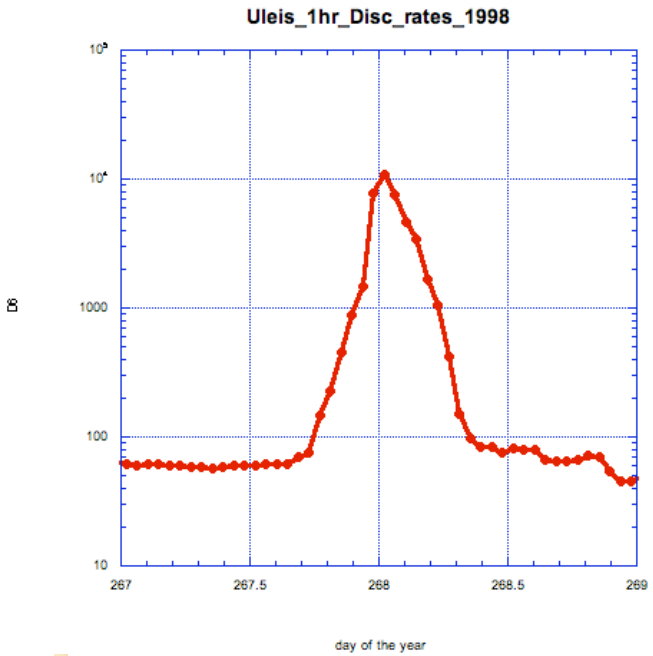


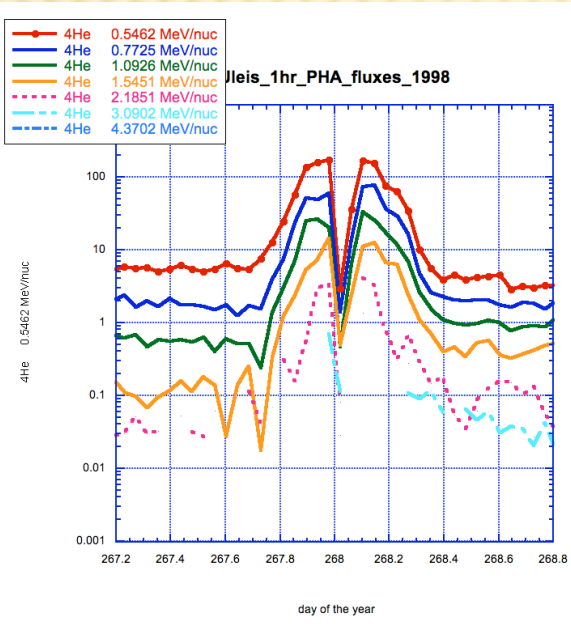
No Correlations

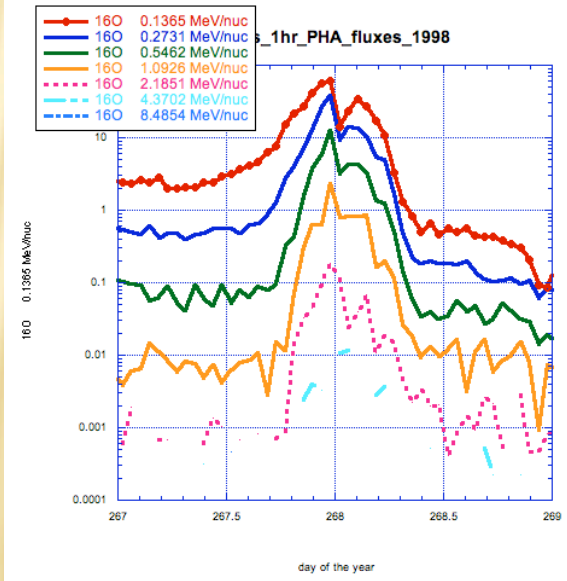
ULEIS SATURATION

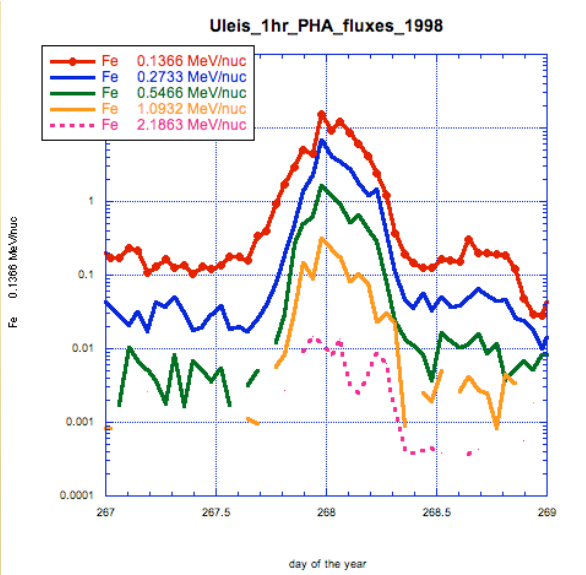
Wind/STEP used to determine He/CNO and then replace ULEIS He with scaled ULEIS O spectrum





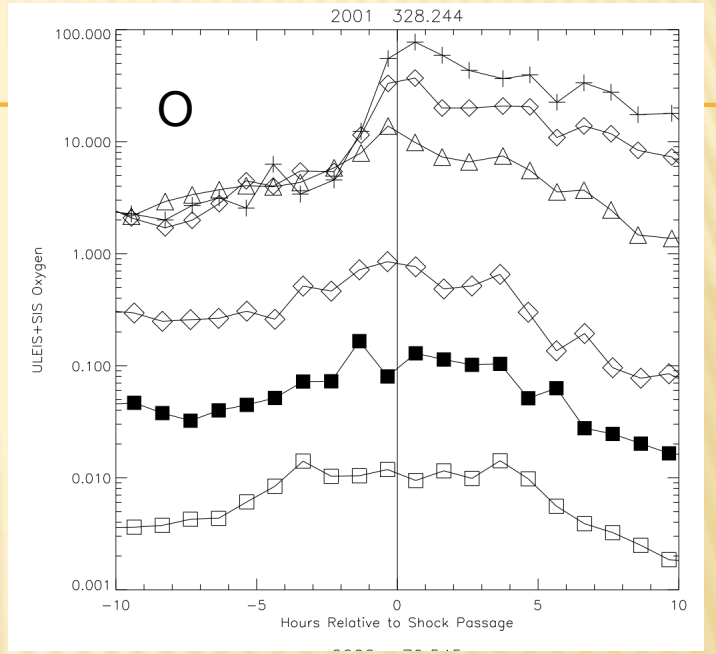


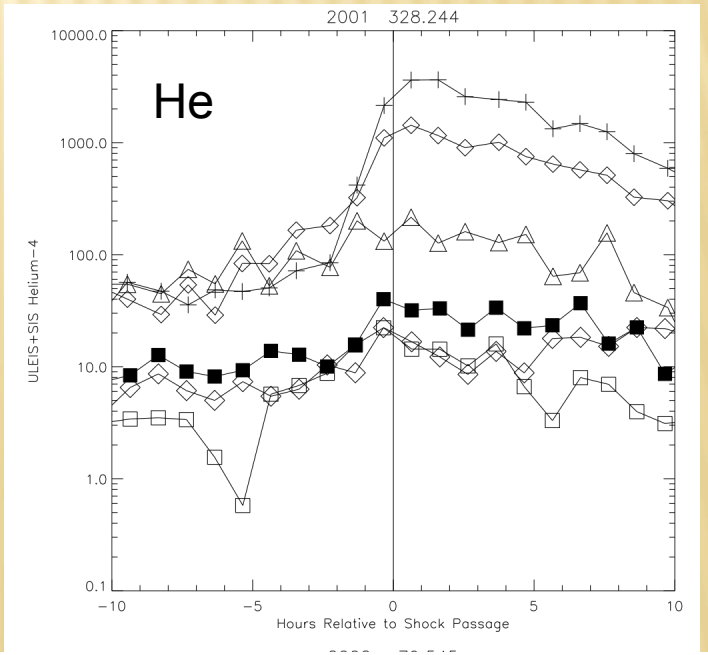




PRE-EVENT INTENSITY CORRECTIONS

- Increases not always seen in SIS data
- Increases not always seen at same time in ULEIS+SIS data
- Selection via O yields different events than selection via He
- Pre-shock peaks?
- Integration times?





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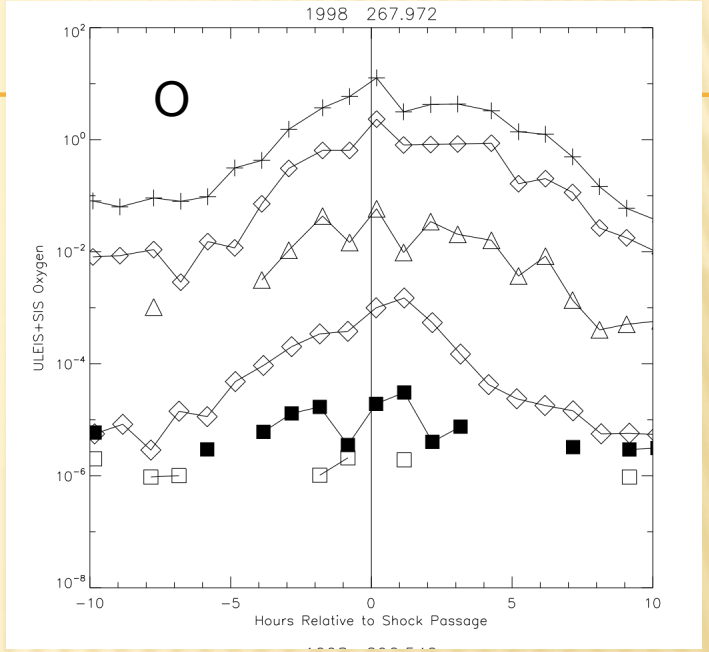

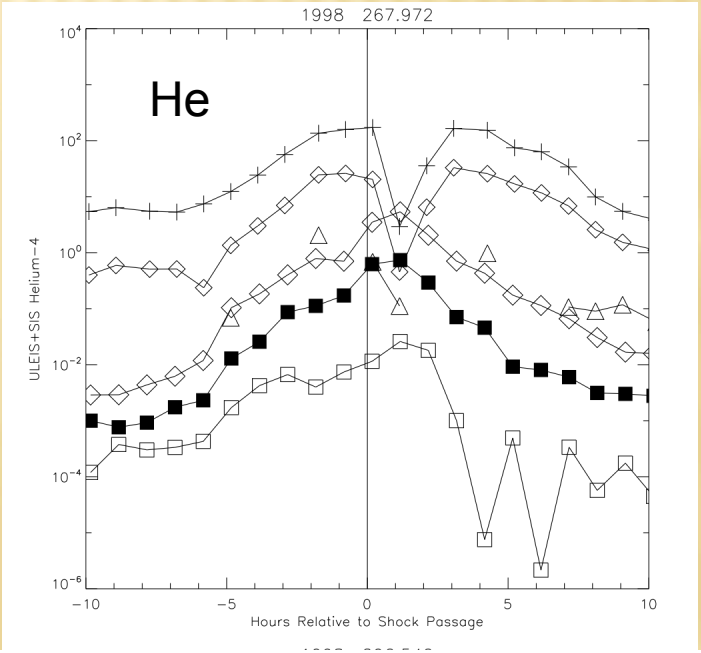

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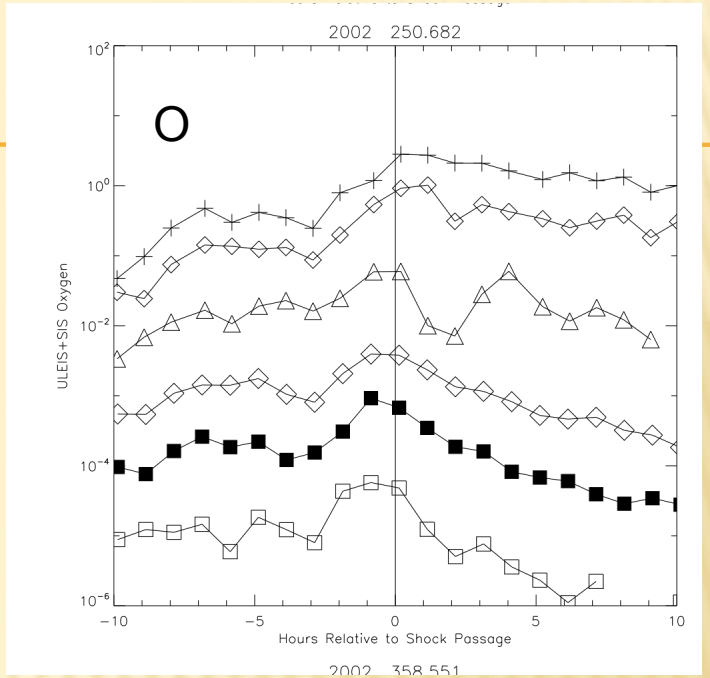
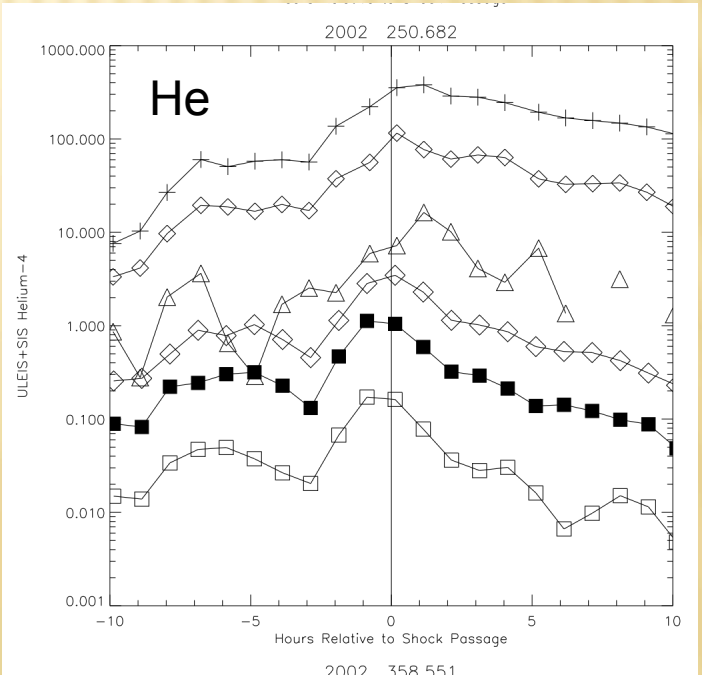


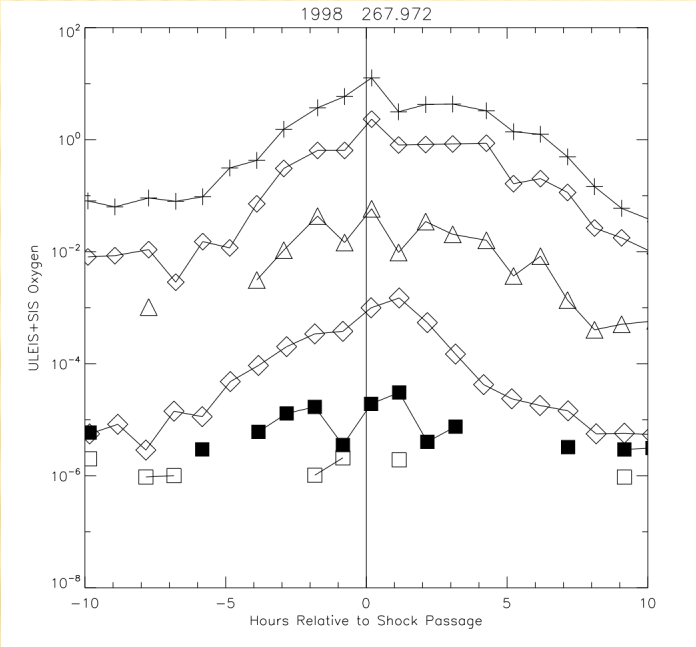


EVENT SELECTION ISSUES (CURRENT)

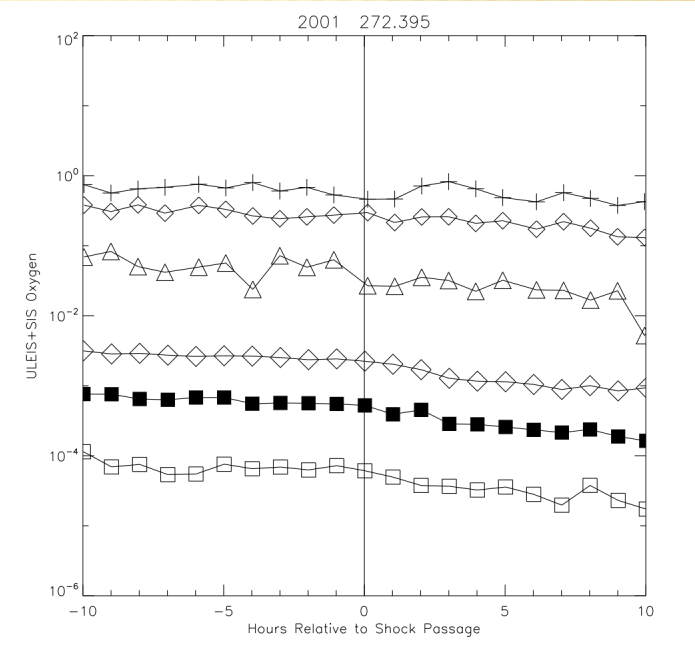
- How to select events?
  - Peak-shock timing
    - Okay to be before shock arrival (how much)?
    - How much after shock arrival is okay?
    - With what tolerance do energies need to peak together?
  - Increases
    - How much is required?
    - At what energy?
    - For what element?
  - Background
    - How to determine?
    - How to subtract?

WHY DIFFERENT RESPONSES?

- Shock 1
  - V=733, R=2.17, Th=78



- Shock 2
  - V=734, R=2.81, Th=51



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