



Master's Forum

Aug 6, 2008

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Genesis

Discovery Mission

Return of Solar Matter to Earth

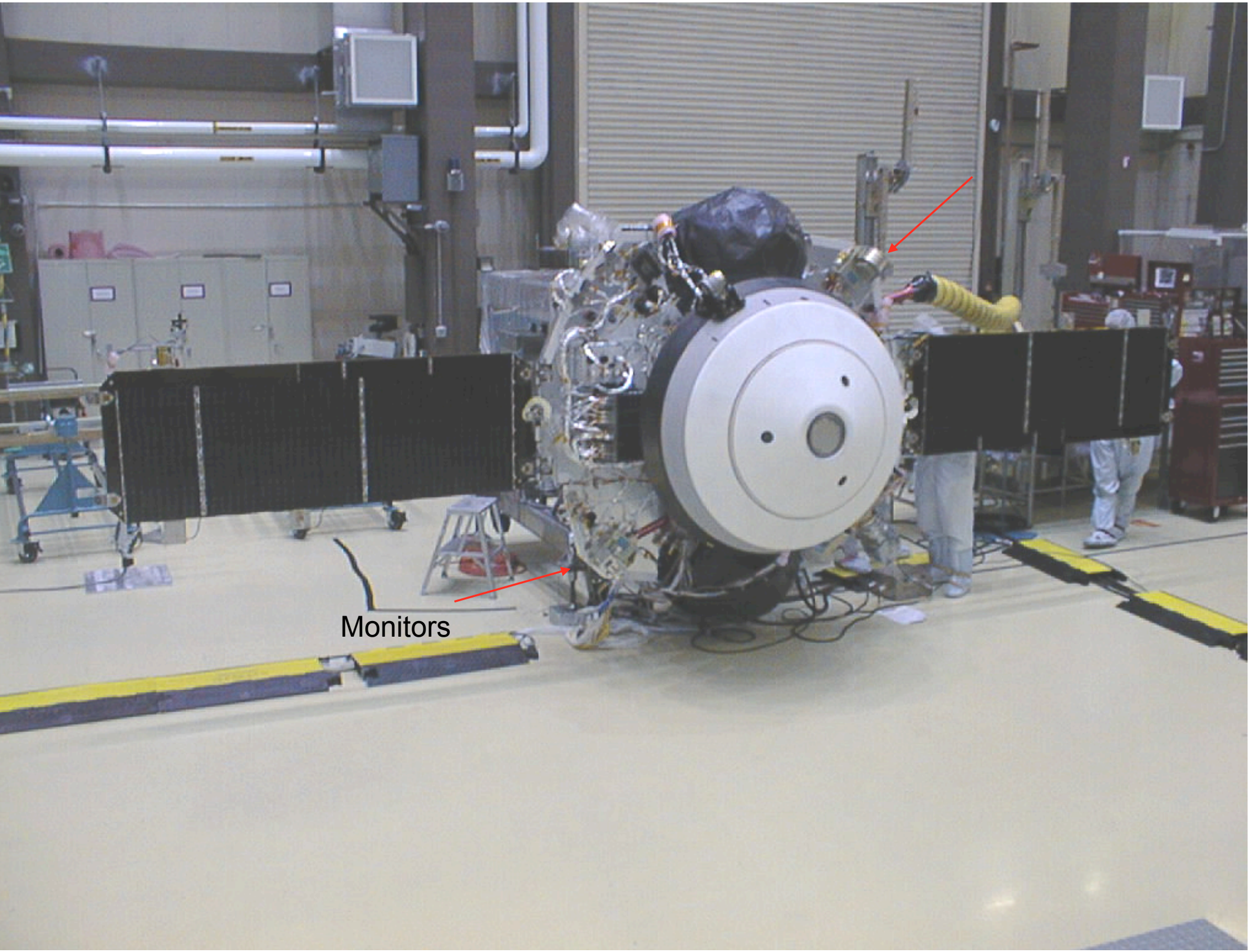
Understanding the Transition Between Star & Planet

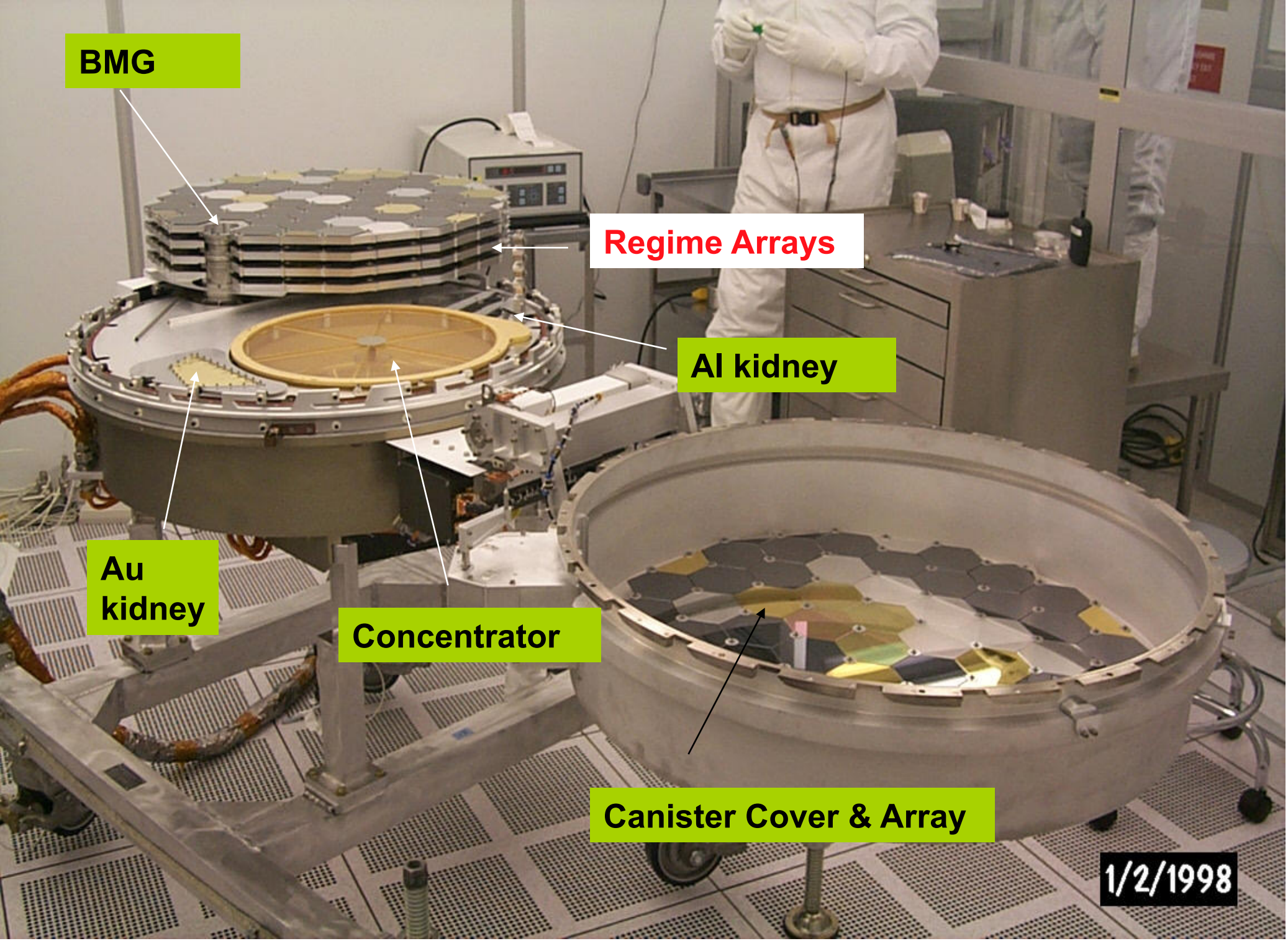
What: Mission in a Nutshell

- Place a spacecraft outside the terrestrial magnetosphere
- Expose Materials
  - Solar wind ions (keV/amu) implanted and stick
  - Expose for 2 years
  - Fluences relatively low, so materials must be ultrapure.
- Return materials to Earth for analysis in terrestrial laboratories.

Why: Genesis Science Objectives

- Provide solar *isotopic* abundances to level of precision required for planetary science purposes.
- Provide greatly improved knowledge of solar *elemental* abundances.
- Provide a reservoir of solar matter to meet the needs of 21st century planetary science.
- Provide elemental and isotopic data for the 3 different types ("regimes") of solar wind.


Monitors

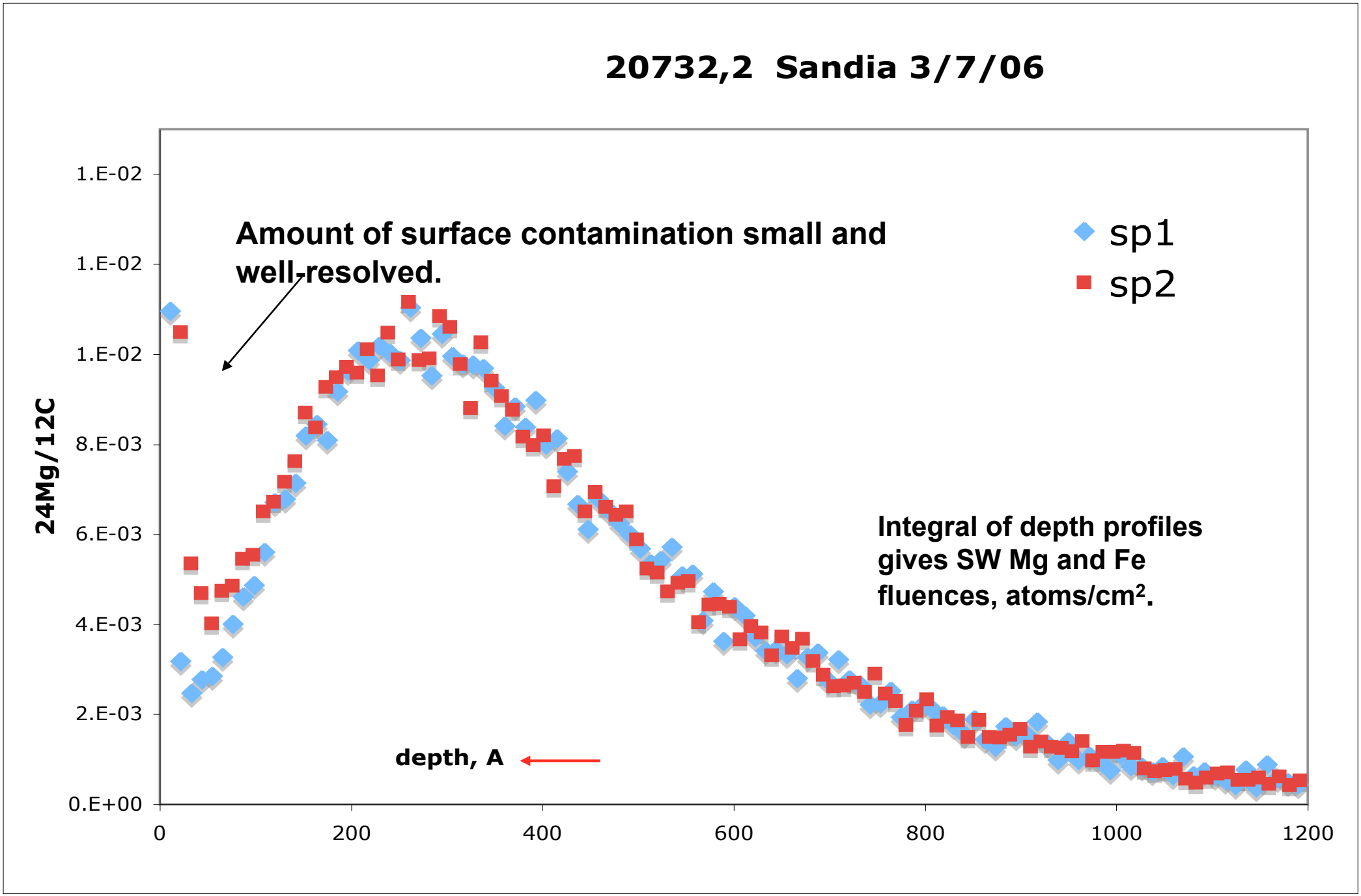


All of this worked perfectly!

Collector Arrays

mple losses serious, but
15,000 pieces >3mm
ecovered.

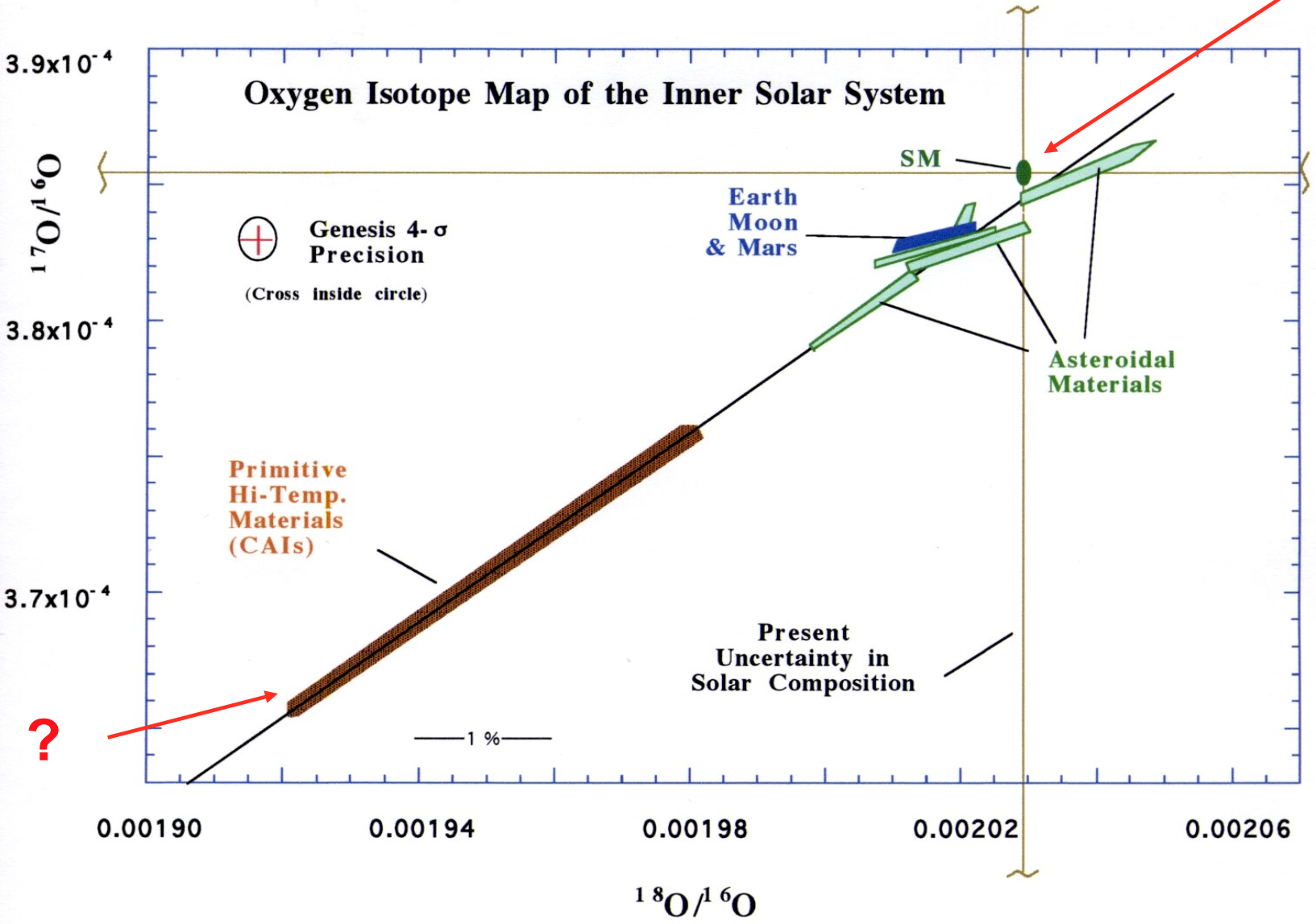
Solar Wind Mg Depth Profile from C collector (ASU)



O isotope record of the solar nebula.

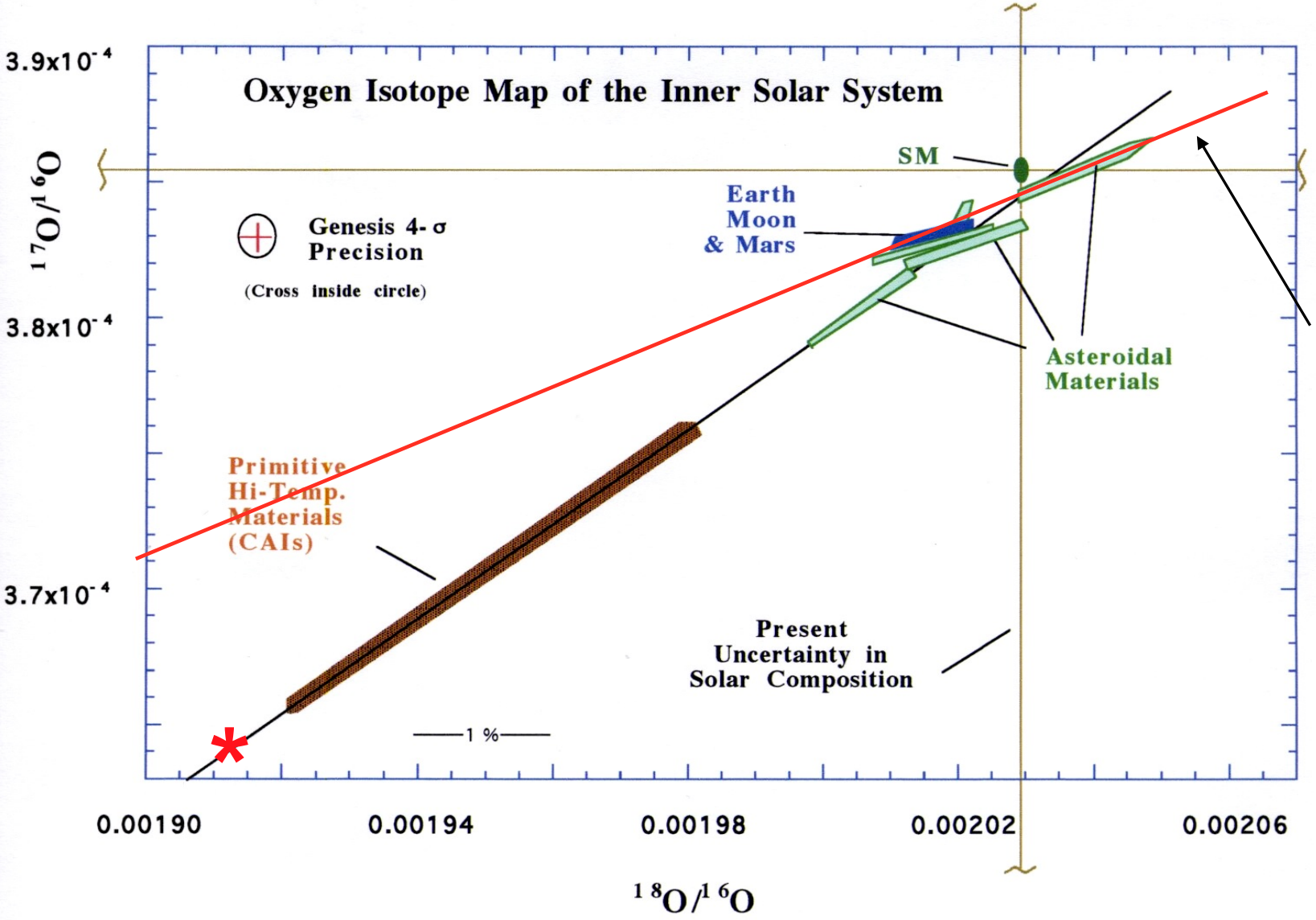
Where's the Sun?

?



O isotope record of the solar nebula.

UCLA AAIF



All terrestrial materials

Paraphrasing *Sky and Telescope*

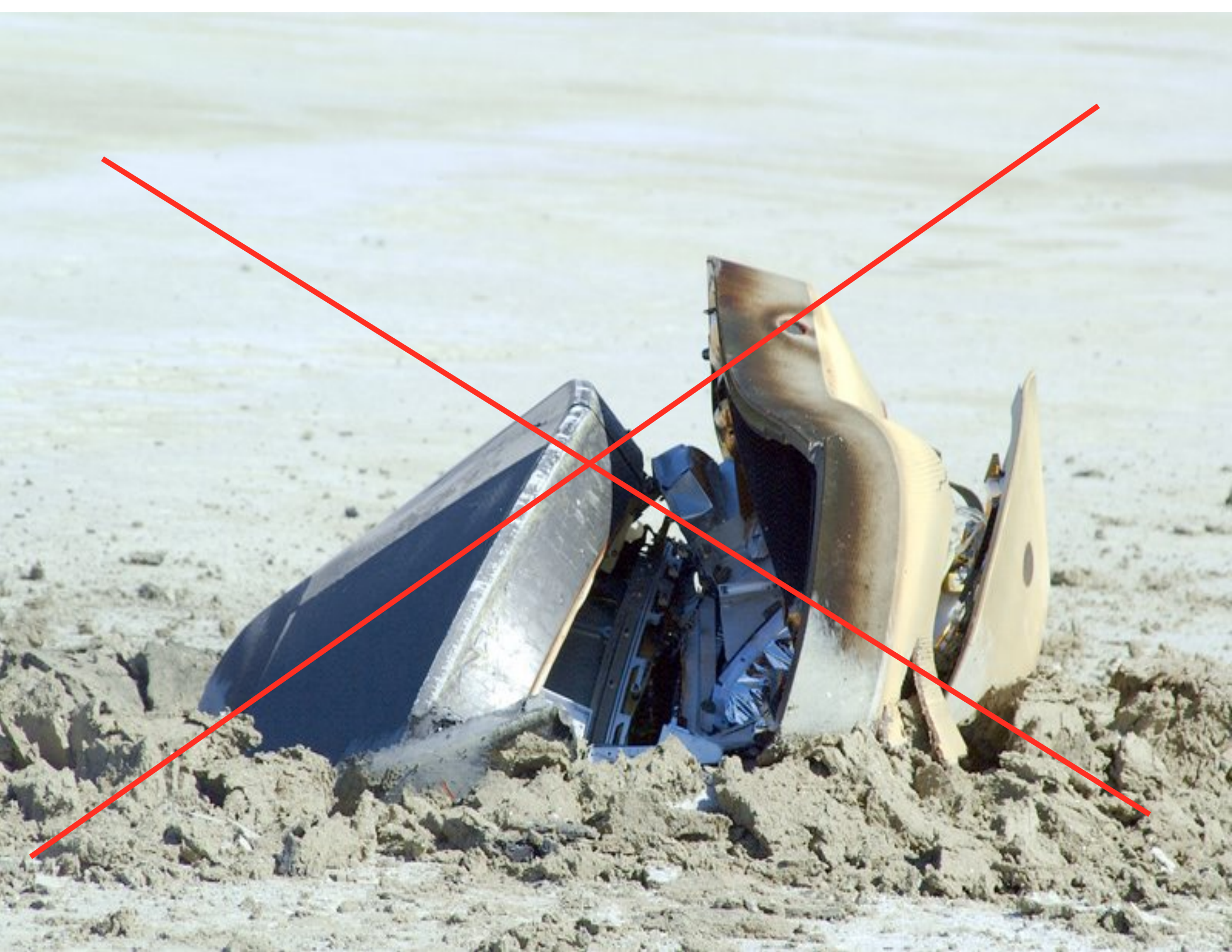
Genesis to Houston:

Earth has a problem.

Status Summary

- Work is proceeding slowly, but.
- Despite crash, we are not giving up on any of our specific measurement objectives.
- Samples allocated to 28 different laboratories.
- Results are emerging with some significant accomplishments on major objectives.

Remember This, not:



Lessons Learned
(Prejudices Acquired)

- You become a mission PI because there is science you want to do, very badly
  - and there is no other way to do it.

- Delegate.
  - but don't back away.
- Learn/understand as much of the details as possible.

Less than top level Lessons Learned

Genesis battery thermal problem:

Less than top level Lessons Learned

Genesis battery thermal problem:

When a requirement flows up that is painful, consider challenging the requirement.

Reviews

- Reviews are obviously important,
  - But pay attention to implementation, in addition to Project Presentations.
  - story
  - Minimize top level surveys in lieu of break out sessions to get to the details.
  - The best people are busy; get on their schedule early.
  - Get materials out to reviewers in advance.
    - you don’t want reviewers shooting from the hip.