IPPW2015, Cologne, Germany

http://atv5.seti.org

ATV-5
Shallow Re-entry Observation Campaign

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4 ESA Space Debris Office, Darmstadt, Germany

ATV-5 Re-entry Experiment

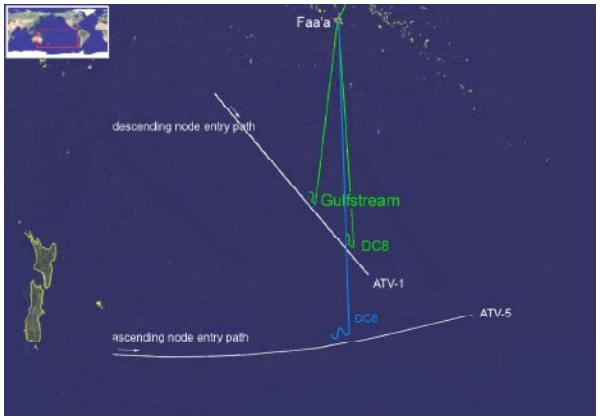
Controlled re-entry experiment (over SPOUA):

Large vehicle (~ 13 tonnes)

Fixed orientation, docking-ring first

Shallow entry (75-km perigee)

Observed from above by ISS



Three breakup recorders by US (REBR), ESA (BUC), JAXA*

Research Goals

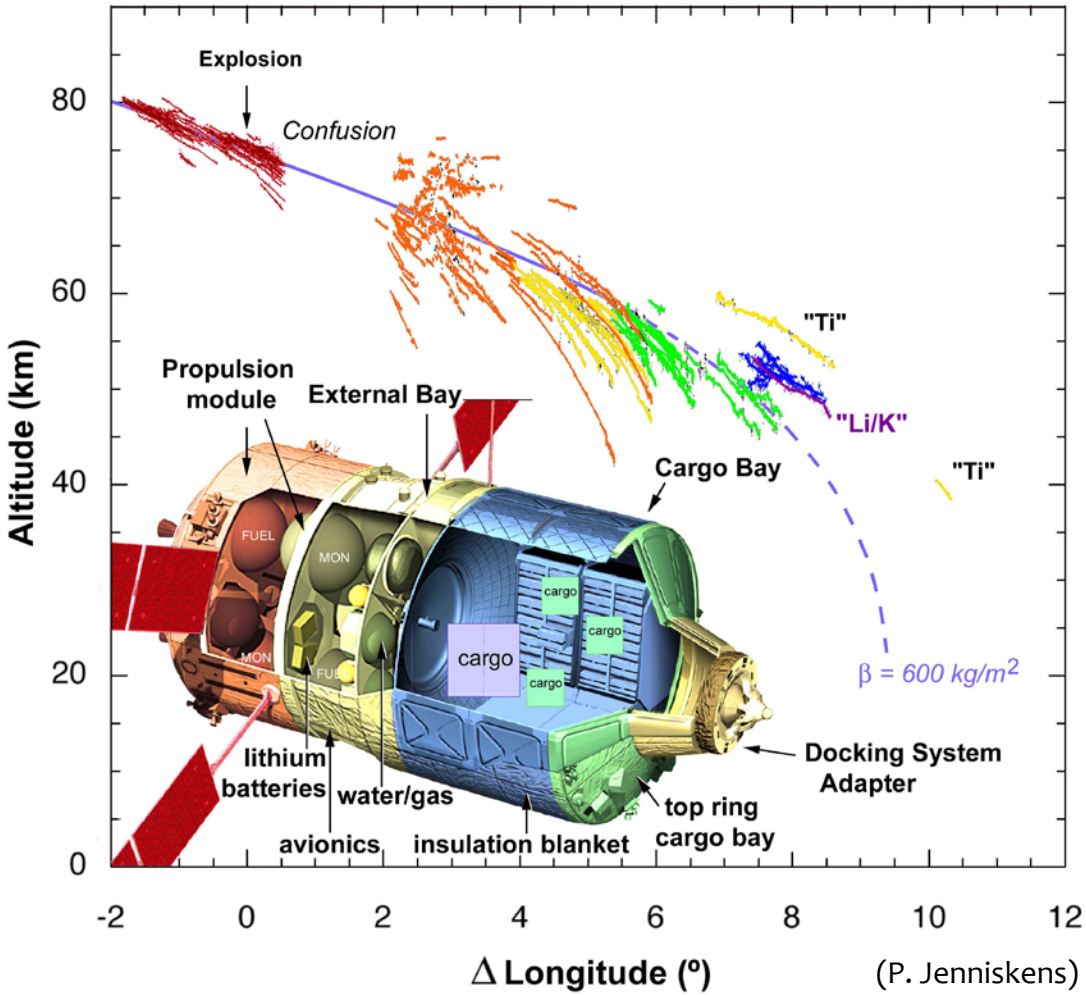
Provide perspective on breakup:

- 3-D reconstruction of fragments
- Estimate number, size distribution and imparted delta V's of fragments
- Provide data that can be compared directly to results from ATV-1 "Jules Verne" re-entry

Multi-Instrument - enable fragment/cause identification:

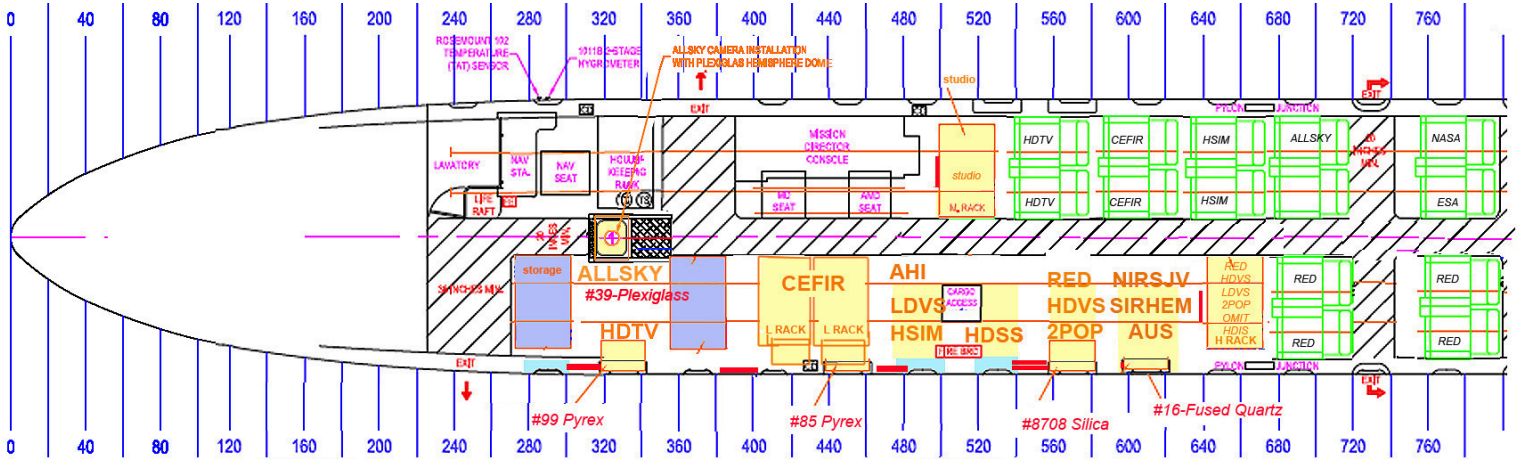
Characterise fragmentation and rupture/deflagration events

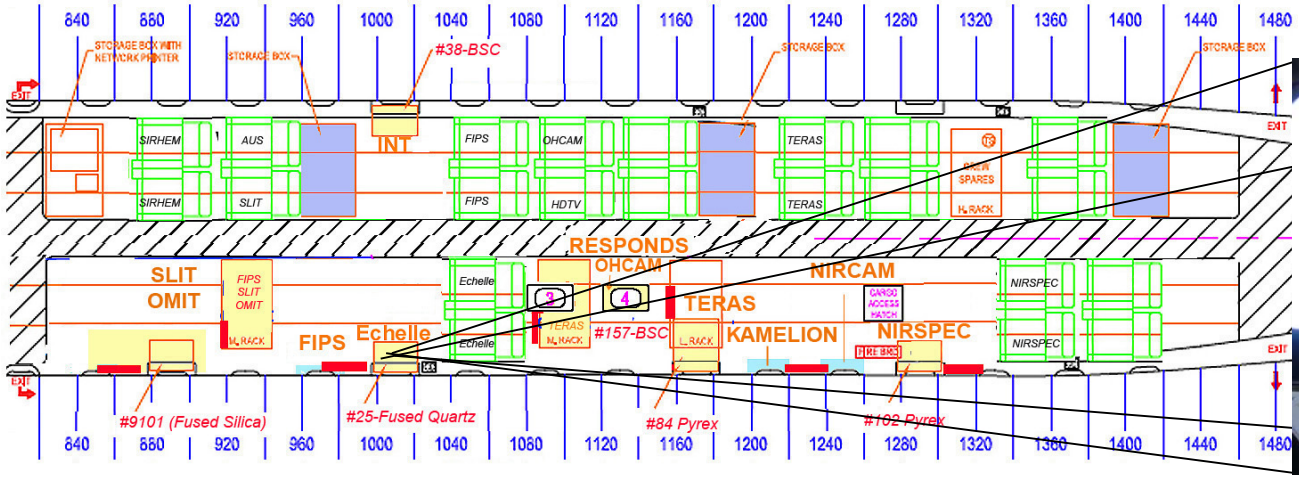
ATV-1

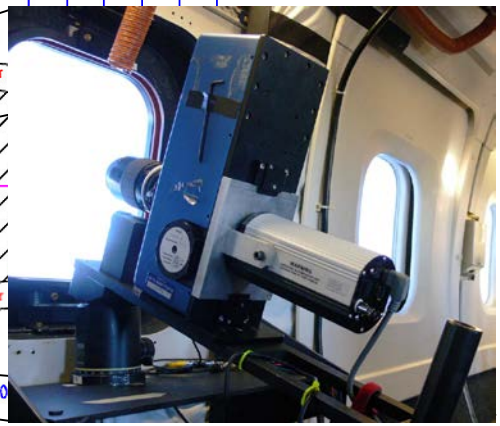


(P. Jenniskens)

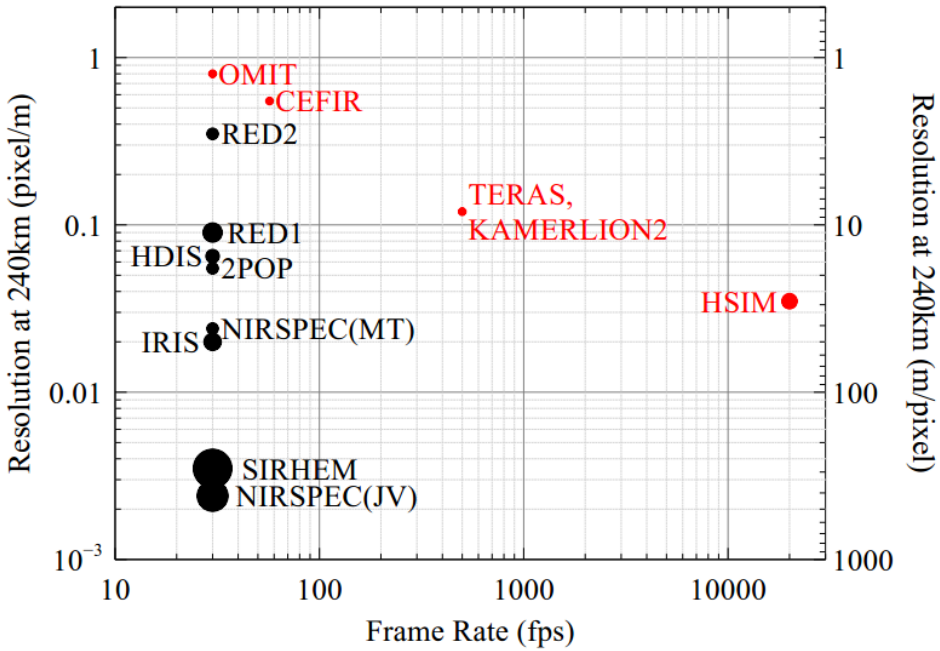
DC-8 Configuration

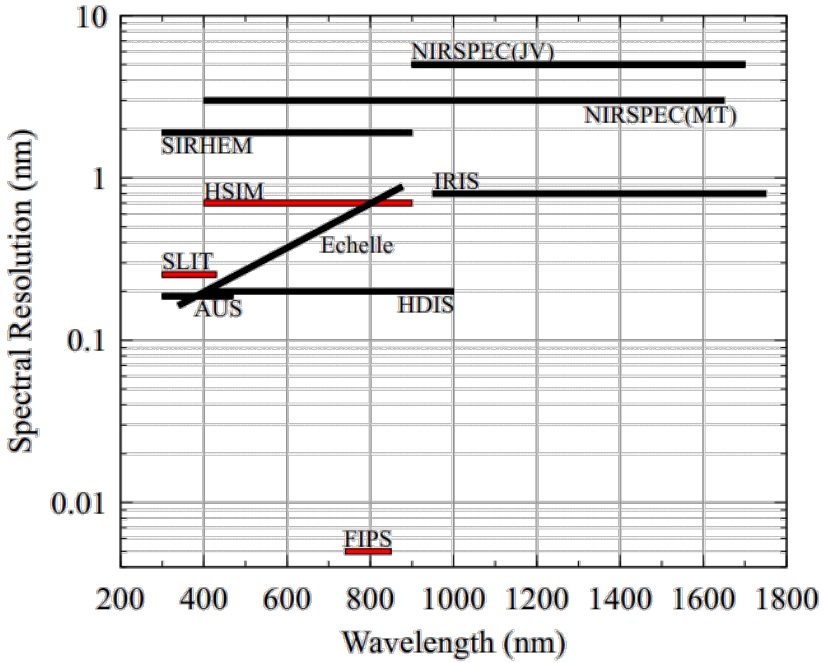






Instruments

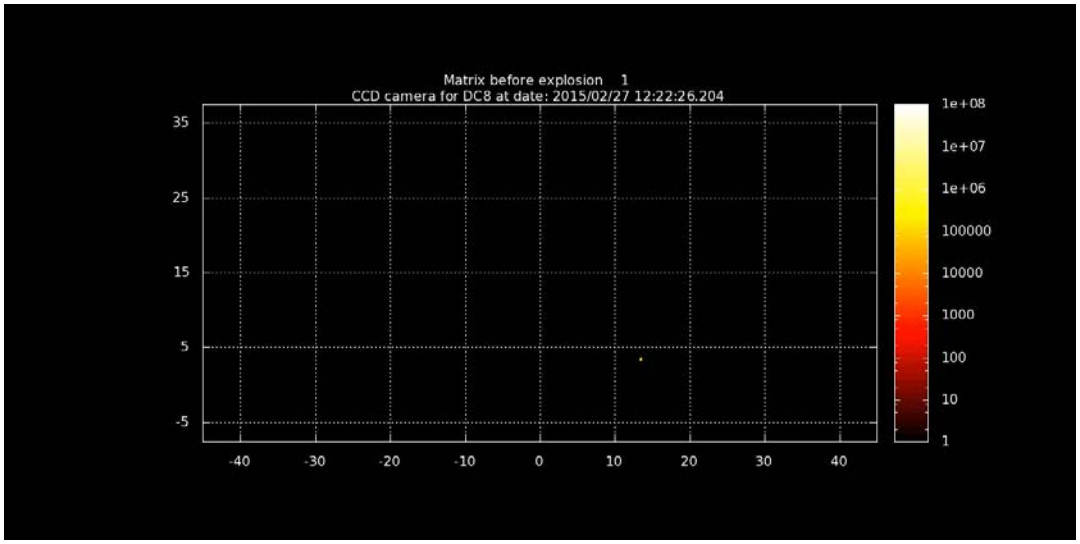


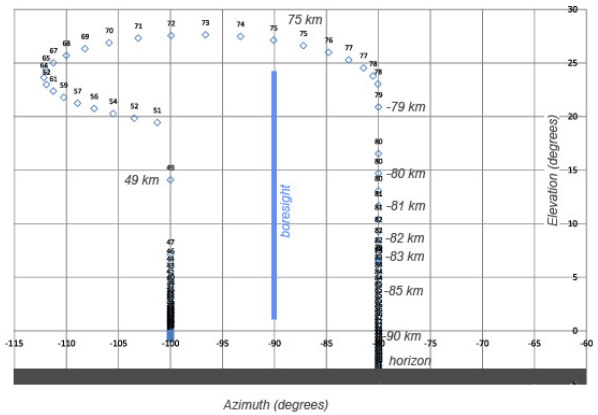


(red: explosion)

Predictions: SCARAB

Predictions: RENFOOT

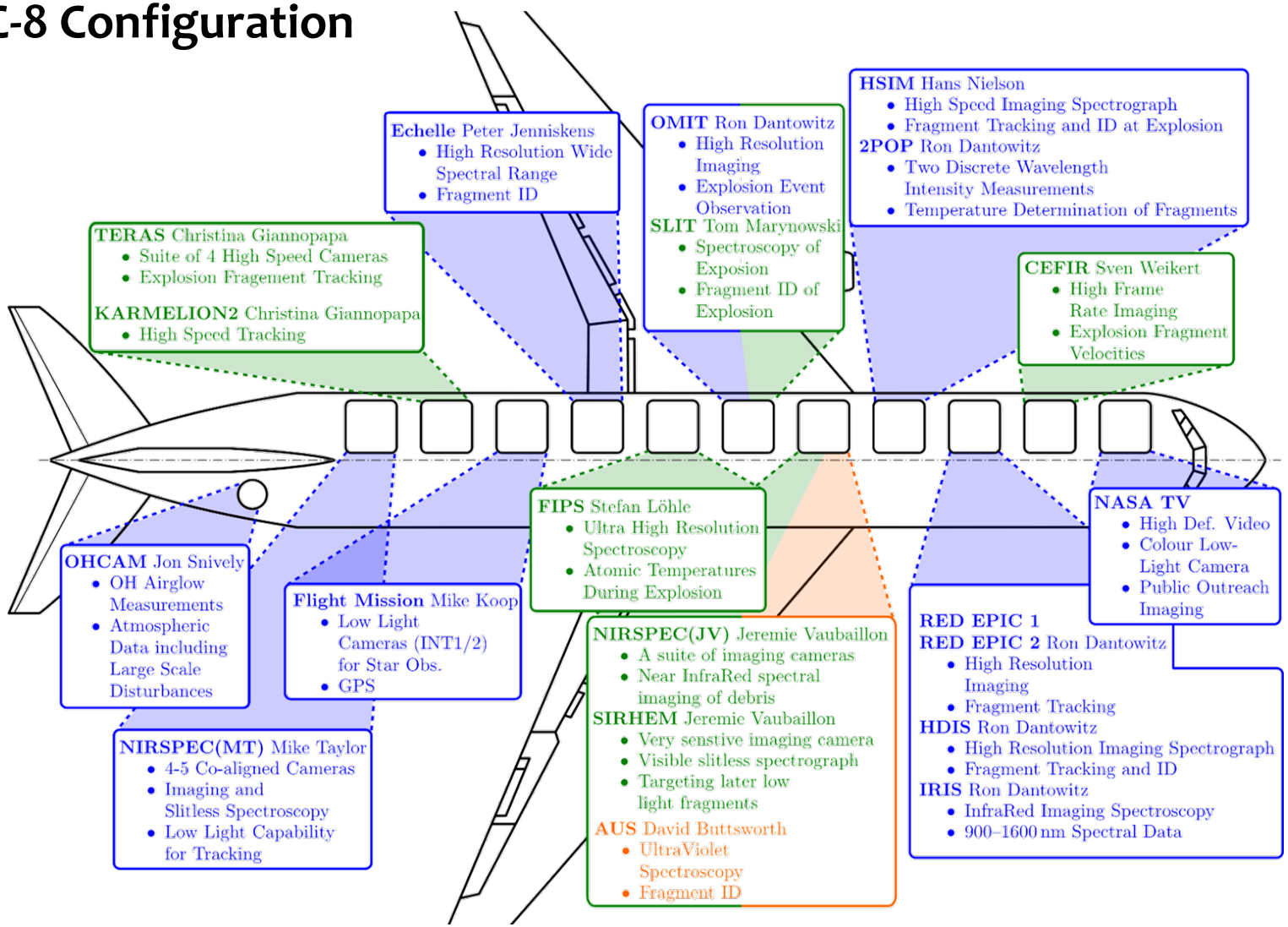




Thank you.

Experiment PIs:

NASA TV, Gregory Merkes, NASA Ames Research Center, Moffet Field, CA
CEFIR, Sven Weikert, Astos Solutions, Germany
RED, Ron Dantowitz, Dexter Southfield School, Brookline, MA
HSIM, Hans Nielson, University of Alaska, Fairbanks, AK
NIRSPEC, Jeremie Vaubaillon, Observatoire de Paris, Paris, France
AUS, David Buttsworth, University of Southern Queensland, Toowoomba, Australia
SLIT, Tom Marynowski, Institute of Space Systems, Stuttgart, Germany
FIPS, Stefan Löhle, Institute of Space Systems, Stuttgart, Germany
ECHELLE, Peter Jenniskens, SETI Institute, Mountain View, CA
INT, Mike Koop, SETI Institute, Mountain View, CA
TERAS, Christina Gianopapa, TU Eindhoven, Eindhoven, The Netherlands
NIRSPEC, Mike Taylor, University of Utah, Logan, UT
OHCAM, Jonathan Snively, Embry-Riddell Aeronautical University, Daytona Beach, FL

In total 31 persons were planned aboard the DC-8

DC-8 Configuration