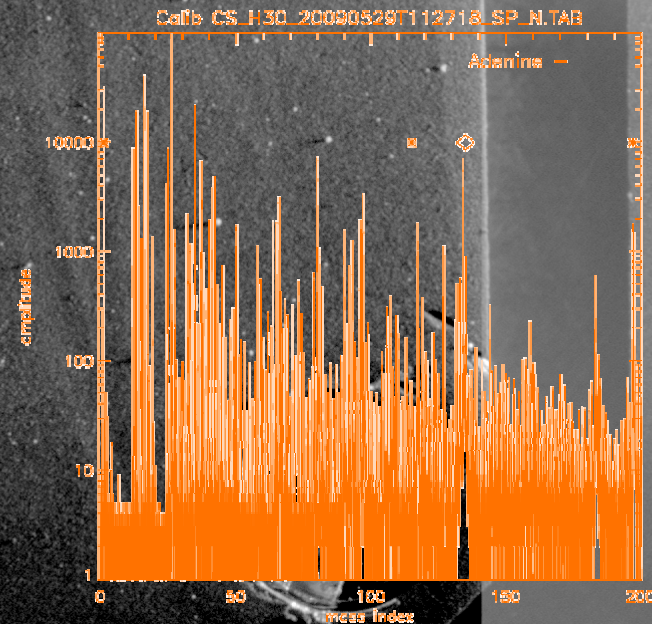
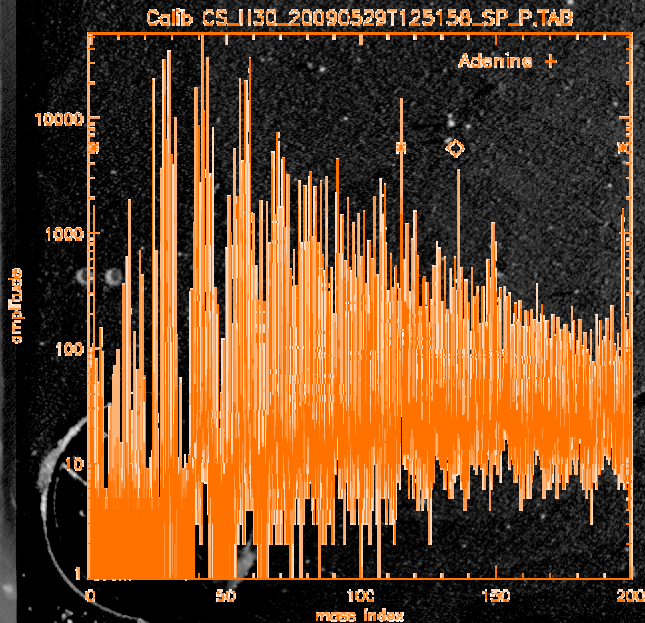


# COSIMA

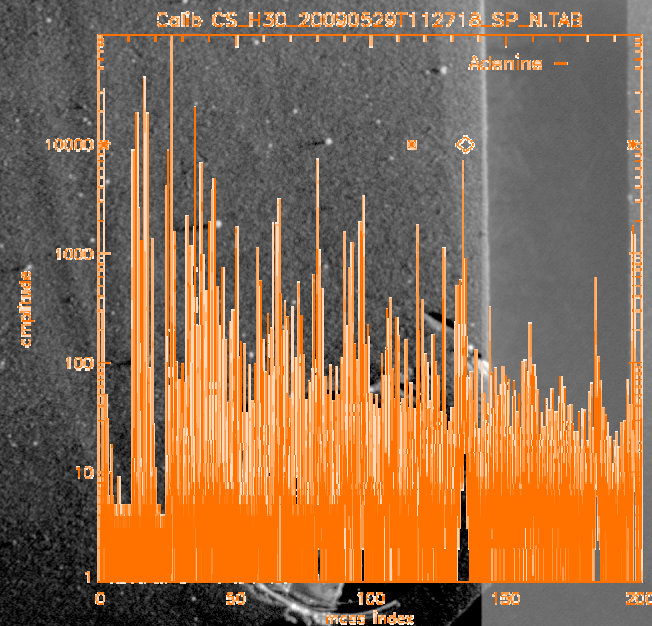
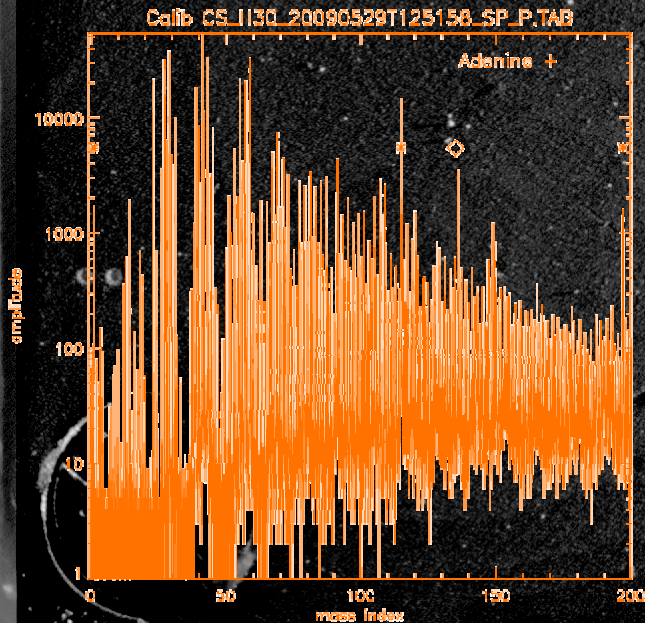
## ENH Science Archive Review

Eberhard Grün



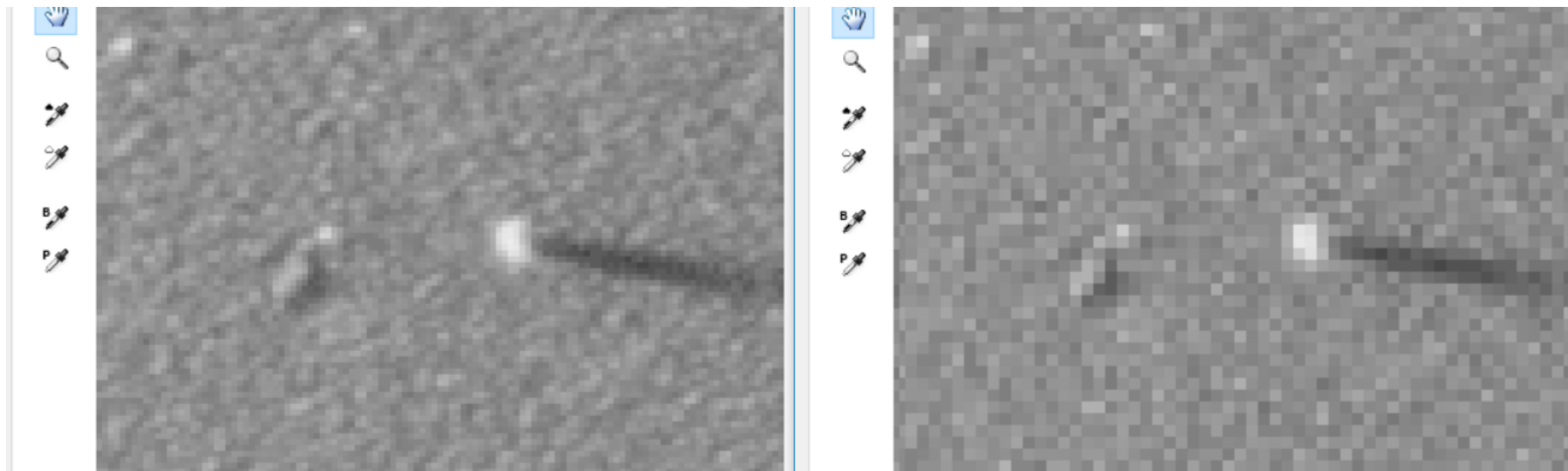
# What's new?

- Updated documentation
- High resolution images
- Corrected mass scales of spectra
- Calibration spectra



# More information on high resolution NYC images

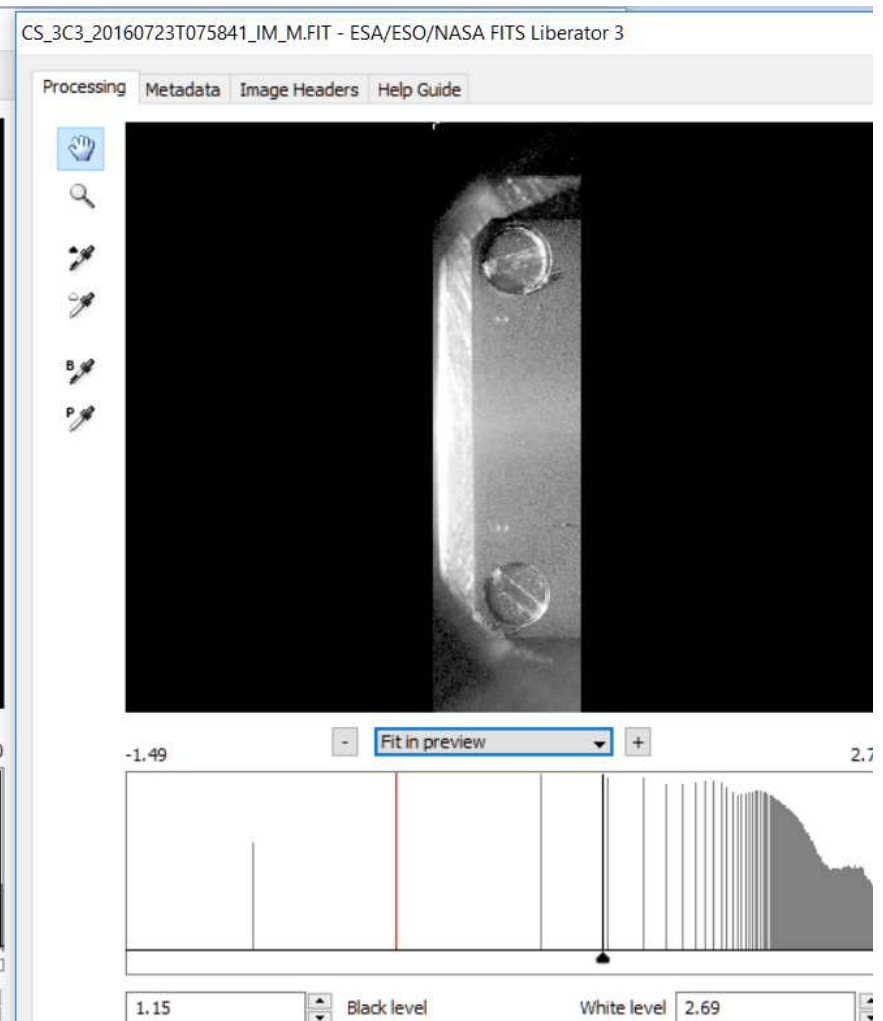
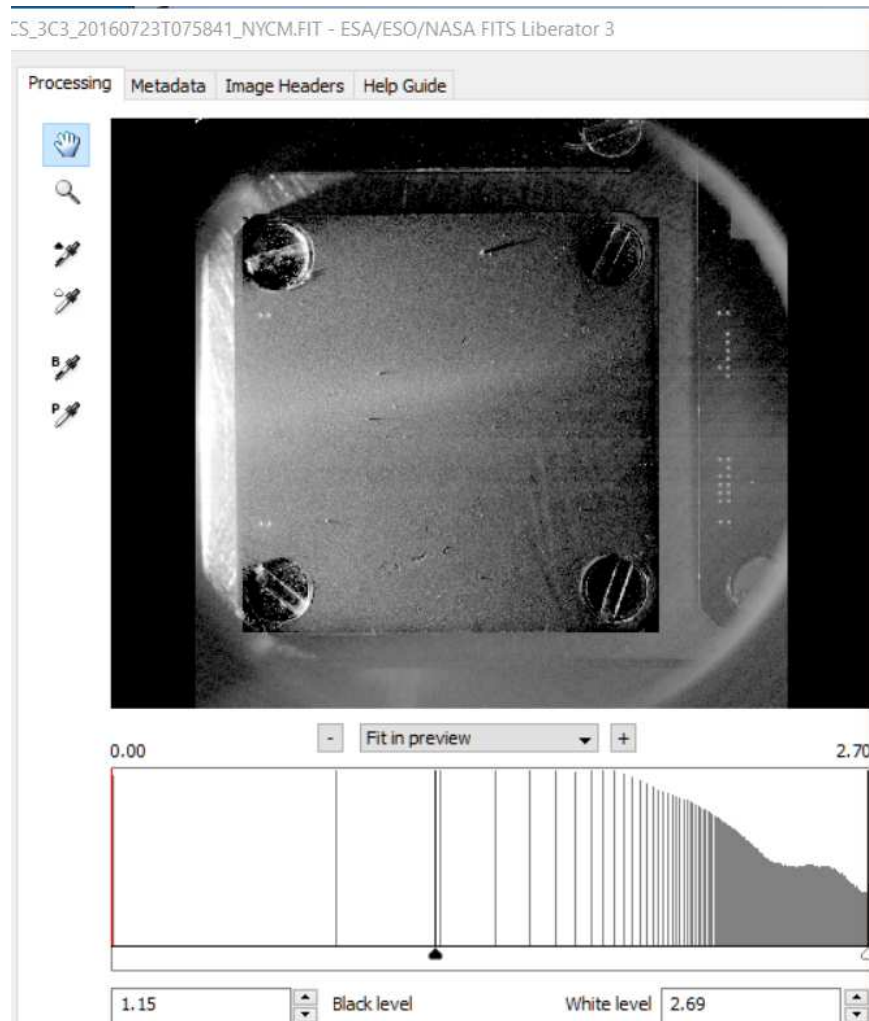
- High resolution NYC images have been generated by combining four images taken with 3.4um offsets. These different images have different observation times. The mask key word has no meaning.
- This information needs to be given in the label or header.



# High resolution image and image module

CS\_3C3\_20160723T075841\_NYCM.FIT

CS\_3C3\_20160723T075841\_IM\_M.FIT



# Status of CS\_...\_NYC... images

- The CS\_...\_NYC..FIT do not show the final dust coverage but the dust coverage at the indicated time!
- Since only one NYC image is given per substrate, this fact needs to be clearly indicated

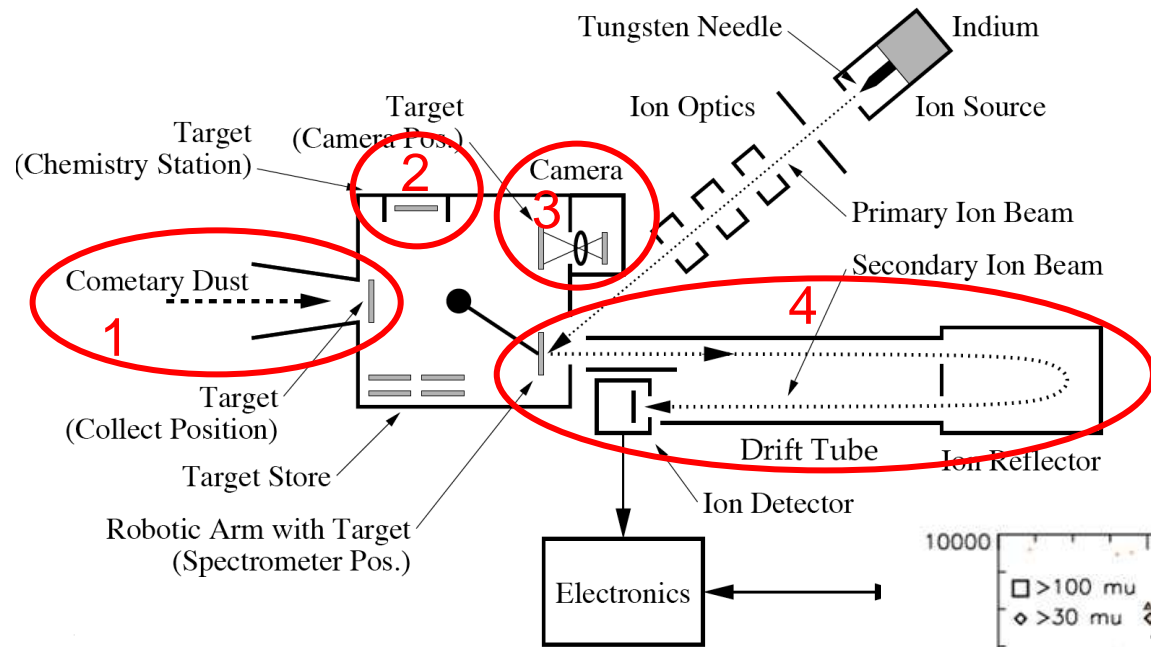
**COSIMA-EU-EG-003 + COSIMA-EU-EG-006 : Major**

# Document DATASET.CAT

- Correct spelling
- Define abbreviations
- Update Processing paragraph with respect to L21
- Correct substrate sketch
- Give reference or example how to match the spectrum position given as X and Y to the X and Y XM substrate coordinates ★

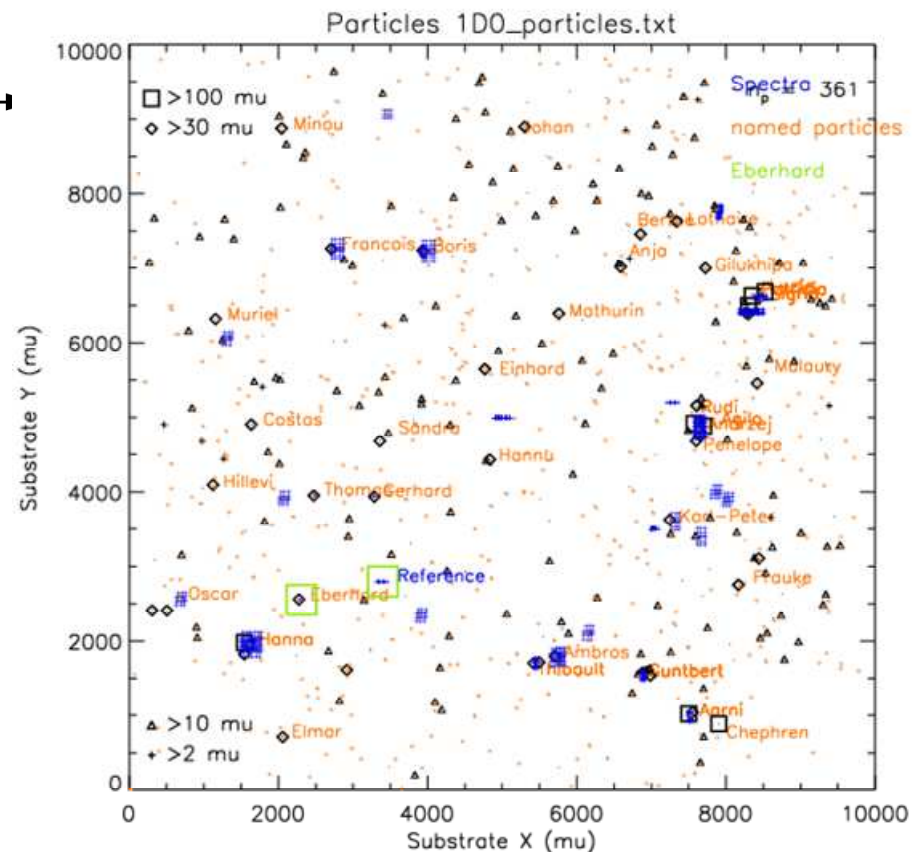
**COSIMA-EU-EG-001: Minor -> Major**

# ★ Position Problem



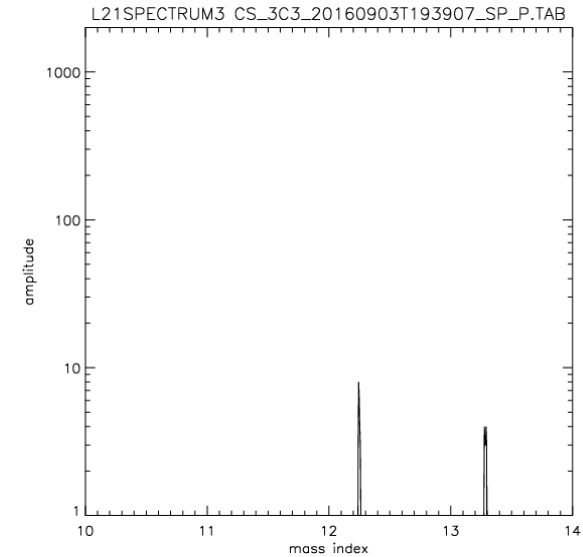
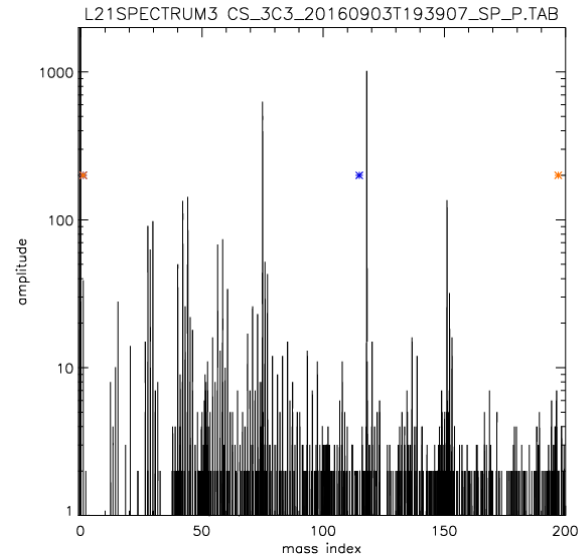
1. Exposure of a target
2. Heating
3. COSISCOPE images
4. Positive and negative mass spectra. The spectrum positions given are a wish list, however, in reality, they may differ by an unknown amount

This is a major problem that only the COSIMA team can resolve

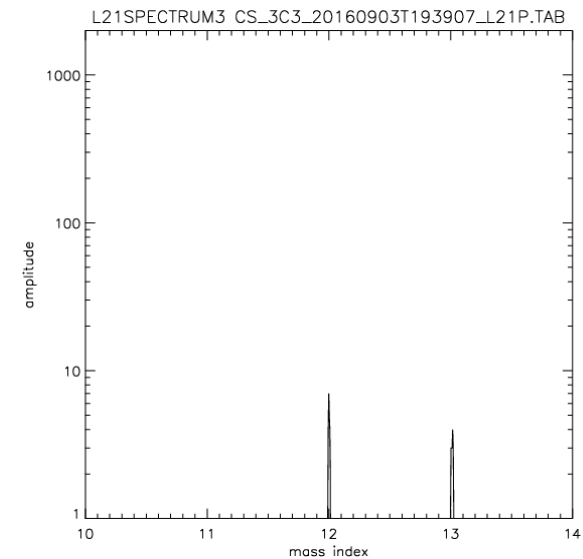
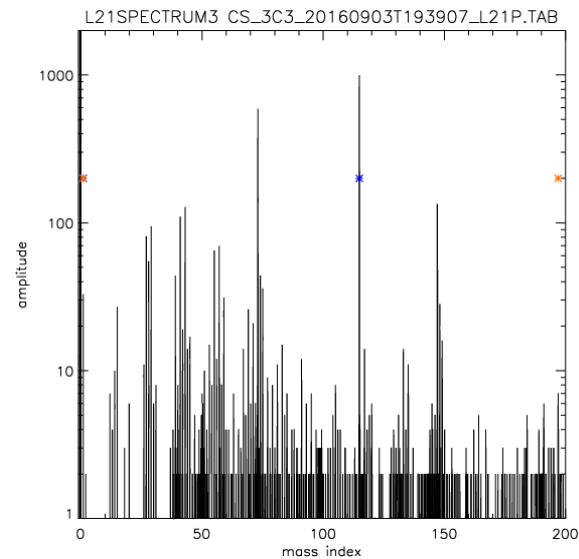


# Calibrated mass scales L21 spectra

Uncalibrated  
raw data



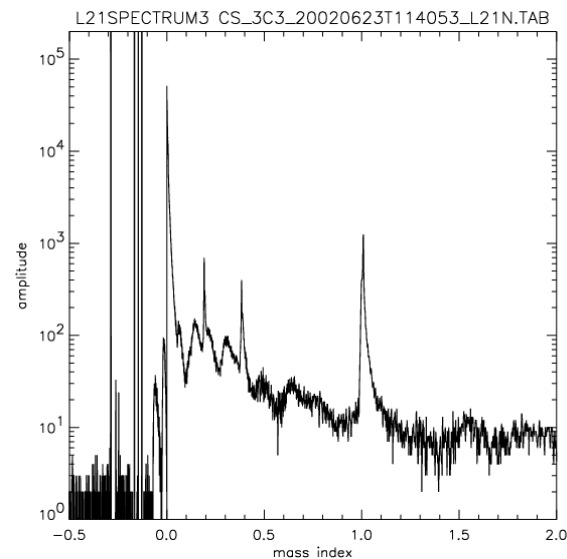
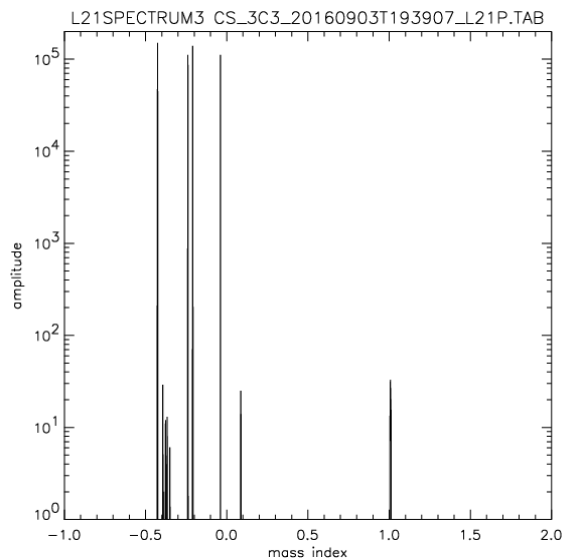
Calibrated  
Negative spectra :  
 $H^-$ , 1.0084 u  
 $Au^-$ , 196.967 u  
Positive spectra :  
 $H^+$ , 1.0073 u  
 $^{115}In^+$ , 114.903 u  
peak fitted





# Relevance of peaks at masses < 1 amu

- Most spectra show peaks at masses < 1 amu.
- Give explanation for and relevance of peaks at masses < 1 amu

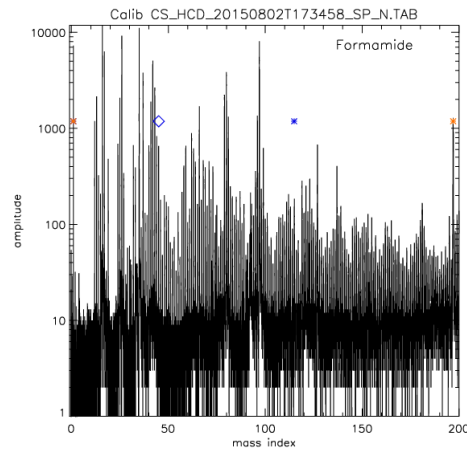


**COSIMA-EU-EG-005:**

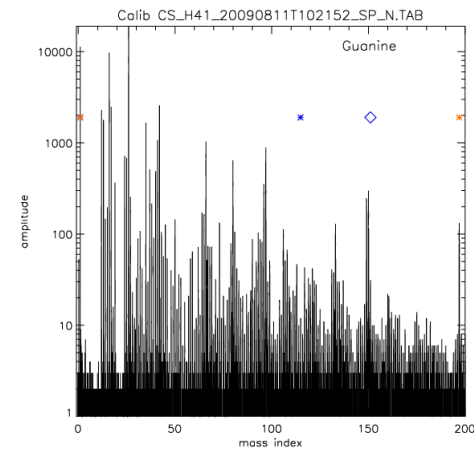
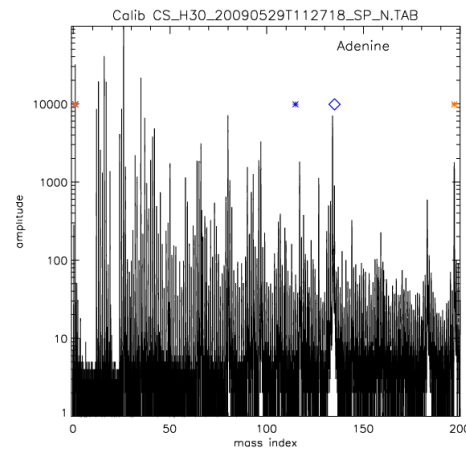
**Minor**

# Calibration spectra of 43 selected organic molecules obtained with the Orléans Model instrument

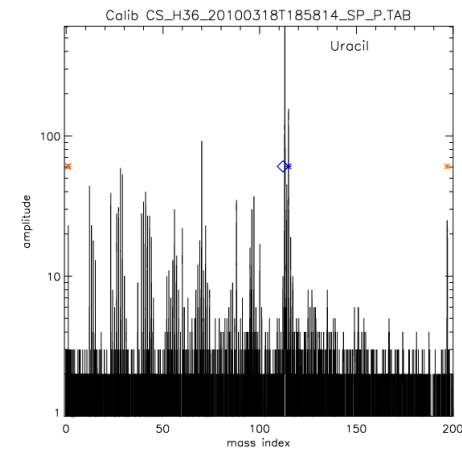
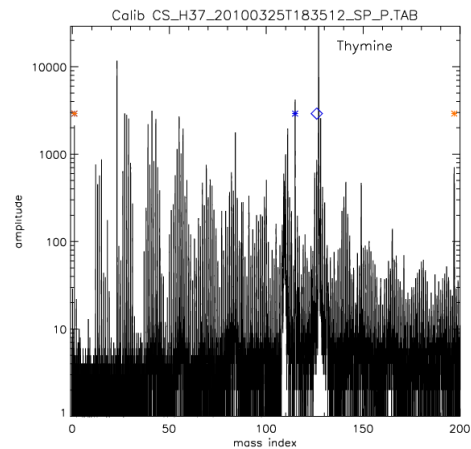
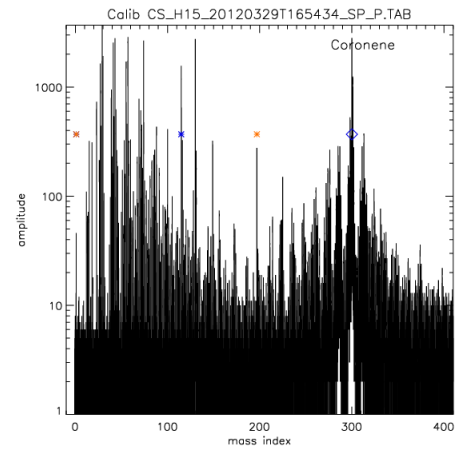
## Amides (e.g.45 amu)



## Nucleobases (112 to 151 amu)



## PAHs (e.g.300 amu)



Very useful data set!

# Document COSIMASIS.PDF

- COSIMASIS.PDF opens as SOP-RSSD-TN-017 pdf document. This is confusing!
- Remove inconsistency: there is a table of content but no page numbering!
- section 2.3: Describe the DATA\_QUALITY\_ID label
- section 4.3.9.1 The subimage mask describes 8 Bytes but a typical mask has 16 HEX numbers: e.g. MASK = 'FFFF000000000000'. This is confusing.
- Where do the COCSIMA level 4 data fit in the PSA/CODMAC/NASA data processing scheme given in section 2.3 Data Handling Process?



**COSIMA-EU-EG-002:**

**Minor**



# Data Processing Levels

| PSA level | CODMAC level | NASA level | Description   |
|-----------|--------------|------------|---|
| 0         |              |            | The raw telemetry data as received at the ground receiving station or ground test GSE, organised by contacts or ground tests.   |
| 0a        |              |            | The telemetry data as produced by the C&DH system on the spacecraft and passed to the telemetry subsystem. Level 0a contains transfer frame packets organised by contacts or ground tests.  |
| 1         |              |            | Level 0 data that have been cleaned and merged, time ordered, and are in packet format. Cleaned, merged and time ordered means that duplicate data have been deleted, missing packets are padded out and the data are organised by days. The actual format of these data is the same as level 0a. This is the level which should be passed to the instrument GSEs for their processing. |
| 1a        | 1            |            | The level 1 data that have been separated by instrument. This is the level which is distributed by the DDS.   |
| 1b        | 2            | 0          | Level 1a data that have been sorted by instrument data types and instrument modes. Data are in scientifically useful form, e.g. as images or individual spectra. These data are still uncalibrated.   |
| 2         | 3            | 1A         | Level 1b with calibration and corrections applied to yield data in scientific units.  |
| 2         | 5            | 2-5        | Higher level data products developed for specific scientific investigations.  |

Where does  
COSIMA  
Level 4 data  
fit in here?

# Error in CS\_...\_SCAN.TAB files

- Files CS\_...\_SCAN.TAB list under  
OBJECT = SCAN\_TABLE:  
COLUMNS = 17
- however, correct number of columns = 18!

**COSIMA-EU-EG-004:**

**Minor**

# RIDs

- **COSIMA-EU-EG-003 + COSIMA-EU-EG-006 :** **Major**  
More information on high resolution NYCP images  
Status of CS\_...\_NYC... images
- **COSIMA-EU-EG-001:** **Minor -> Major**  
Comments on COSIMASIS.PDF
- **COSIMA-EU-EG-005:** **Minor**  
Relevance of peaks at masses < 1 amu
- **COSIMA-EU-EG-002:** **Minor**  
Comments on DATASET.CAT
- **COSIMA-EU-EG-004:** **Minor**  
Error in CS\_...\_SCAN.TAB files