



# SPIRE Spectrometer Data Products

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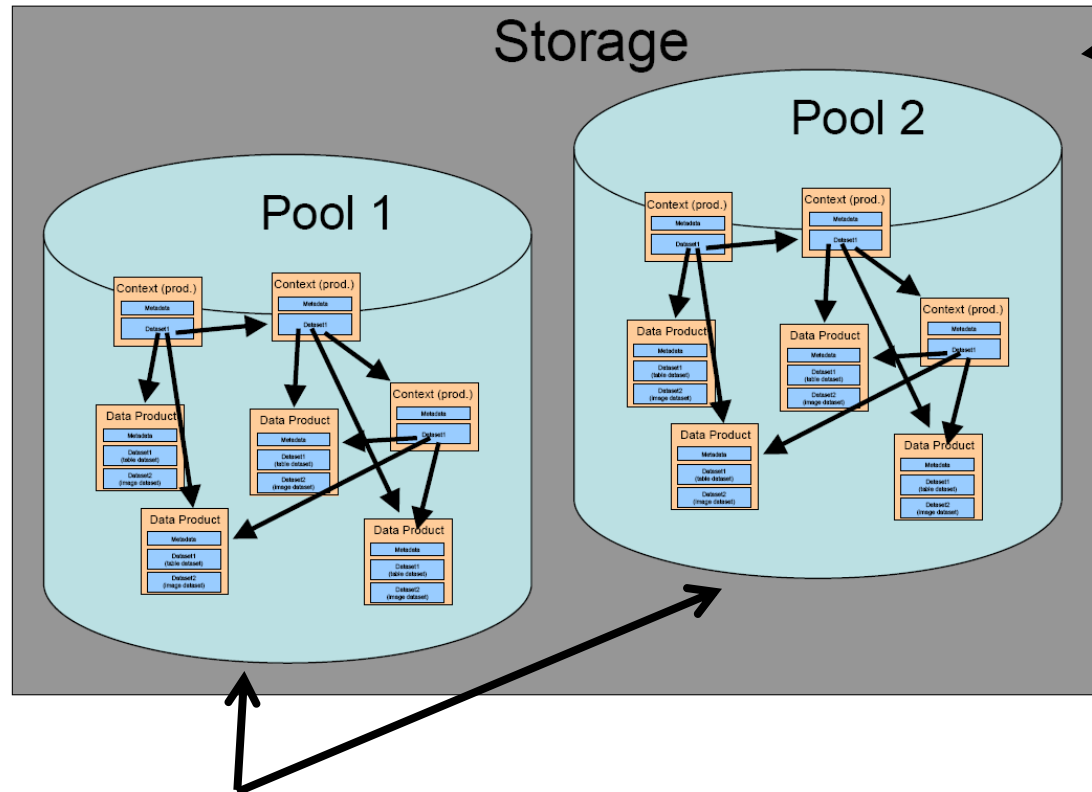


# What to expect when running the pipeline on SPIRE Spectrometer data...

- When you get the data, you download to a "pool" on your local machine containing one "Observation Context" per observation
- The Observation Context contains all the data that you need:
  - Auxiliary (pointing) data
  - Calibration data
  - Level 0 (raw) data
  - Level 0.5 (engineering) data
  - Level 1 and Level 2 data

Standard pipeline products, ready to analyze!

# Pools and Storage



The storage location on the local disk

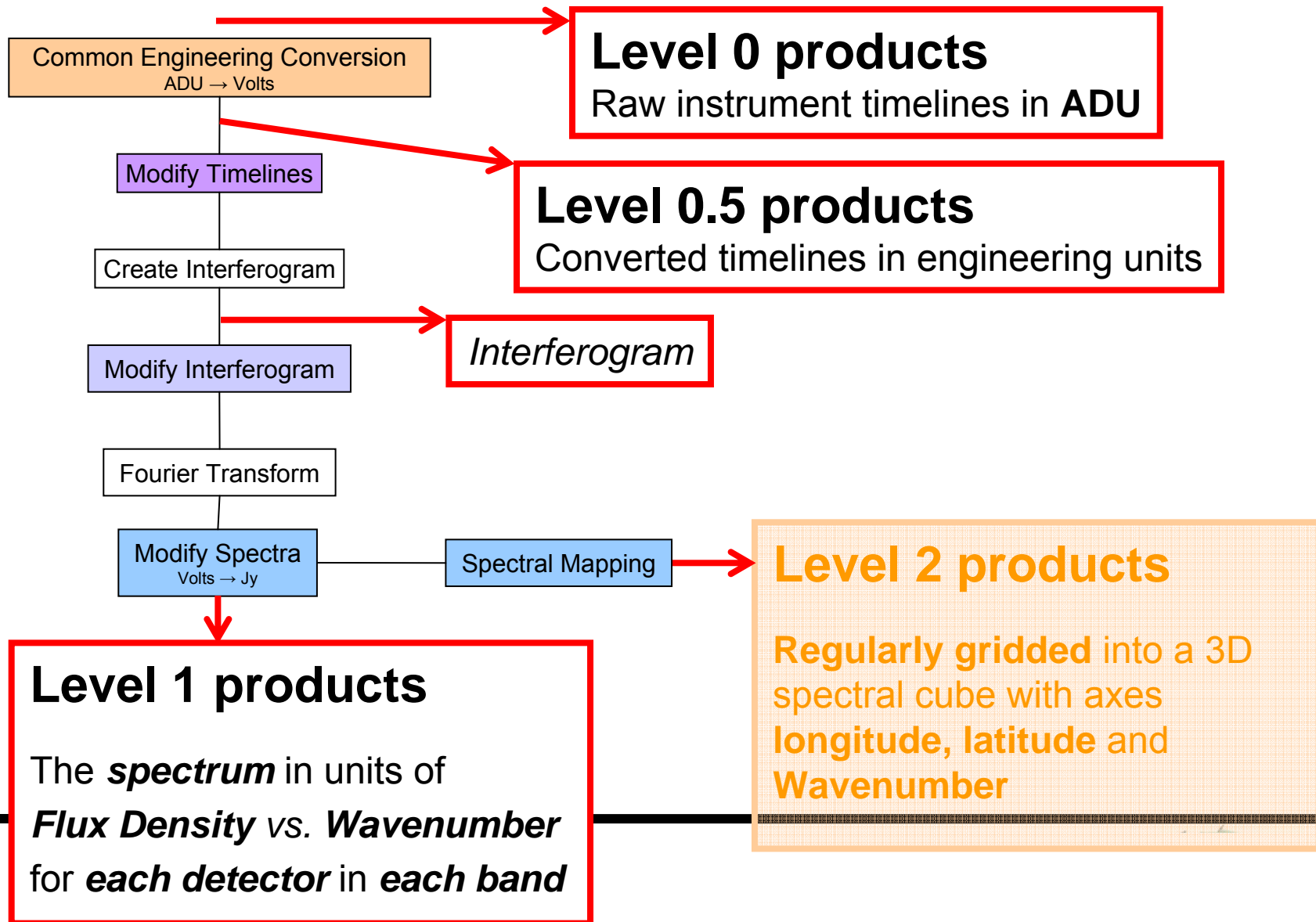
Each pool contains a collection of contexts and products contained inside the "Observation Context" → ***the Onion***

Several "pools" stored  
e.g. the 3 demo pools for SPIRE named:

- demo-spire-spec-0x300117FE
- demo-spire-spec-0x30011800
- demo-spire-spec-0x30011802



# Reminder: Data Product Levels





# Load the Observation Context

HIPE - Herschel Interactive Processing Environment

File Edit Run Window Help

Editor x

New-1 x

```
# Open a storage
storage = ProductStorage("demo-spire-spec-0x300117FE")

# Query it for Observation Contexts
results = storage.select(Query("type=='OBS'"))

# Select the first result
observation = results[0].product
```

Console x

```
HIPE> storage = ProductStorage("demo-spire-spec-0x300117FE")
HIPE> results = storage.select(Query("type=='OBS'"))
HIPE> observation = results[0].product
HIPE>
```

Variables x

- observation
- results
- storage

appears in  
"Variables" window

Variables x

- Open Enter
- Open With Product Viewer
- Send to Context Viewer
- Delete Delete
- Help Selection F1 Observation Viewer



# Observation Context in the Context Viewer

**Context Viewer tab**

name	value	unit	description
type	OBS		Product Type Identification
creator	AUTO		Generator of this product
creationDate	2009-01-20T16:50:55Z		Creation date of this product
description	Unknown		Name of this product
instrument	SPIRE		Instrument attached to this product
modelName	PFM4		Model name attached to this product
startDate	2006-12-08T18:43:16Z		Start date of this product
endDate	2006-12-08T18:50:41Z		End date of this product
obsState	LEVEL1_PROCESSED		
obsid	805378046		
odNumber	-1		

**Level 1 data**  
right click and open in  
*Context Viewer*

Named Products

- level0
- level0\_5
- level1
- auxiliary
- quality
- calibration
- logObsContext

Associated Products

- level0
- level0\_5
- level1
  - class: herchel.spire.ia.dataset.context.Level1Context
  - urn:demo-spire-spec-0x300117FE:herchel.spire.ia.dataset.context.Level1Context:0
  - meta (load)
  - product
- auxiliary
- quality
- calibration
- logObsContext

Open With

- Product Viewer
- Context Viewer



# Level 1 Data: *Interferograms & Final Spectra*

Editor x

observation observati...].product observati...].product x observati...].product

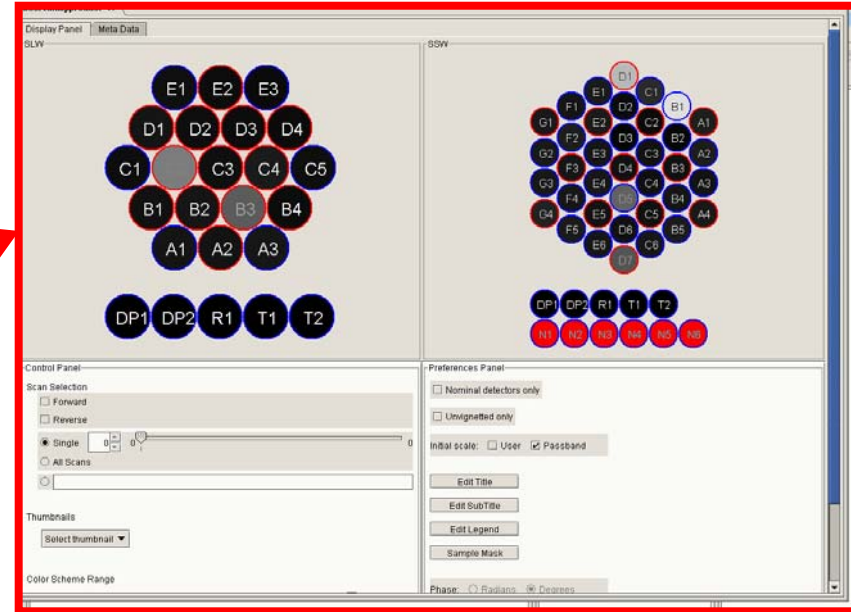
Meta Data			
name	value	unit	description
type	Level1 Context		Product Type Identification
creator	\$Id: Level1 Context.java,v ...		Generator of this product
creationDate	2009-01-20T17:51:16Z		Creation date of this product
description	Context for SPIRE Level ...		Name of this product
instrument	SPIRE		Instrument attached to this product
modelName	PFM4		Model name attached to this product
startDate	2009-01-20T17:51:16Z		Start date of this product
endDate	2009-01-20T17:51:16Z		End date of this product
obsid	805378046		Observation Identifier

Data Sets  
None

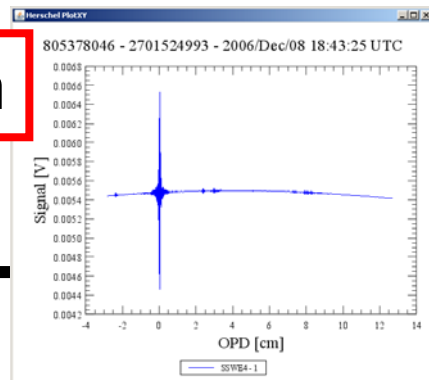
Associated Products

Indexed Products

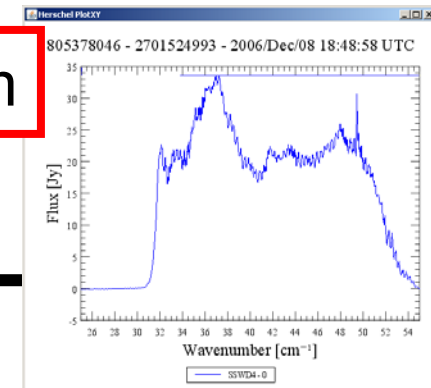
- 0
  - class: herchel.spire.ia.dataset.SpectrometerDetectorInterferogram
  - urn:demo-spire-spec-0x300117FE:herchel.spire.ia.dataset.SpectrometerDetectorInterferogram:0
  - meta (load)
  - product (load)
- 1
  - class: herchel.spire.ia.dataset.SpectrometerDetectorSpectrum
  - urn:demo-spire-spec-0x300117FE:herchel.spire.ia.dataset.SpectrometerDetectorSpectrum:0
  - meta (load)
  - product (load)



interferogram



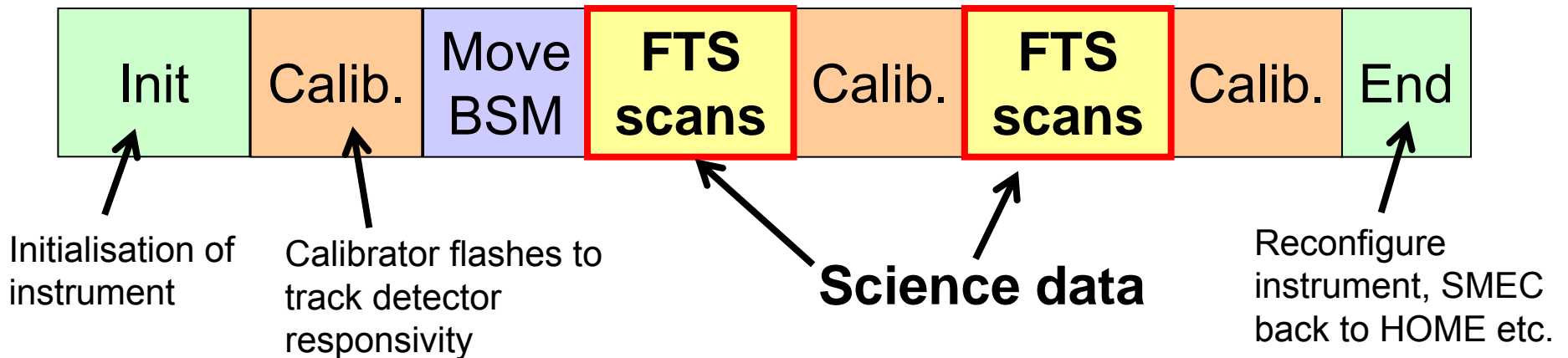
spectrum





## Level 0.5 Data: *Building Blocks*

- SPIRE observations are divided into *Building Blocks*:

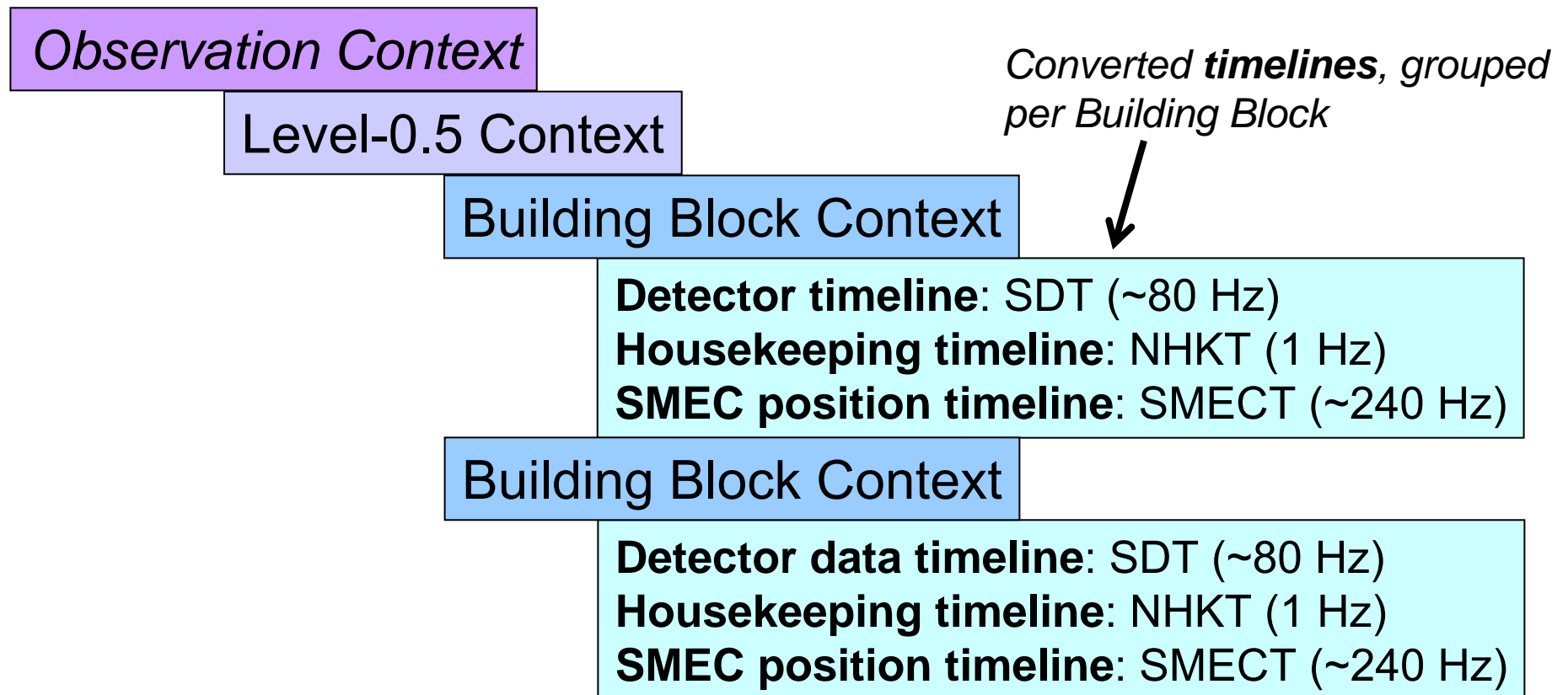


- Each **basic instrument operation** is contained in a separate building block
- The Level 0.5 **data** that you get are also divided per building block.



## Level 0.5 Data

- The data you get reflect the observation structure:





# Level 0.5 Context

**Context containing EDP output products**

name	value	unit	description
type	EdpContext		Product Type Identification
creator	\$Id: SpireListContext.java...		Generator of this product
creationDate	2009-01-20T17:46:26Z		Creation date of this product
description	Context containing EDP ...		Name of this product
instrument	SPIRE		Instrument attached to this product
modelName	Unknown		Model name attached to this product
startDate	2009-01-20T17:46:26Z		Start date of this product
endDate	2009-01-20T17:46:26Z		End date of this product

None

Associated Products

- Indexed Products
  - 0
  - 1
  - 2
  - 3
    - class: herschel.spire.ia.dataset.context.EdpBlockContext
    - urn:demo-spire-spec-0x300117FE:herschel.spire.ia.dataset.context.EdpBlockContext:3
    - meta (load)
    - prod
  - 4
  - 5
  - 6
  - 7

Context menu options: Open, Open With, Help Selection, Product Viewer, Context Viewer

Building blocks that make up the level 0.5 context. Each one contains several timeline products

open one Building Block



# One Building Block

**MapContext for SPIRE products**

name	value	unit	description
type	EdpBlockContext		Product Type Identification
creator	\$Id: SpireMapContext.jav...		Generator of this product
creationDate	2009-01-20T17:46:34Z		Creation date of this product
description	MapContext for SPIRE pr...		Name of this product
instrument	SPIRE		Instrument attached to this product
modelName	PFM4		Model name attached to this product
startDate	2006-12-08T18:43:06Z		Start date of this product
endDate	2006-12-08T18:43:29Z		End date of this product
obsid	805378046		
bbid	2818637825		Building Block Identifier
fileName	EdpBlockContext_30011...		file name for export

**Associated Products**

- Named Products
  - SDT (circled in red)
    - class: herschel.spire.ia.dataset.DetectorTimeline
    - urn:demo-spire-spec-0x300117FE:herschel.spire.ia.dataset.DetectorTimeline:1
    - meta (load)
  - CHKT
  - NHKT
  - SCUT

**3 tables of data**

offsetApp	true
slwBiasAmpl	0.031132395
sswBiasA...	0.03112677
rcRollApp	true
jiggld	0
pointNum	0

**Data Sets**

- Datasets
  - voltage
  - resistance
  - mask
  - quality
  - temperature

**Console**

**Detector Timeline Viewer**

Plot for SSWD4  
 Short Date Fri Dec 08 18:43:25 GMT 2006

Y-axis: voltage [V]  
 X-axis: sampleTime[ null ]

**Spectrometer Detector Timeline (SDT)**