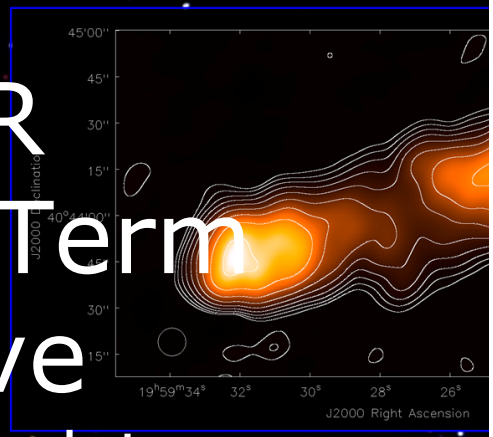
ASTRON

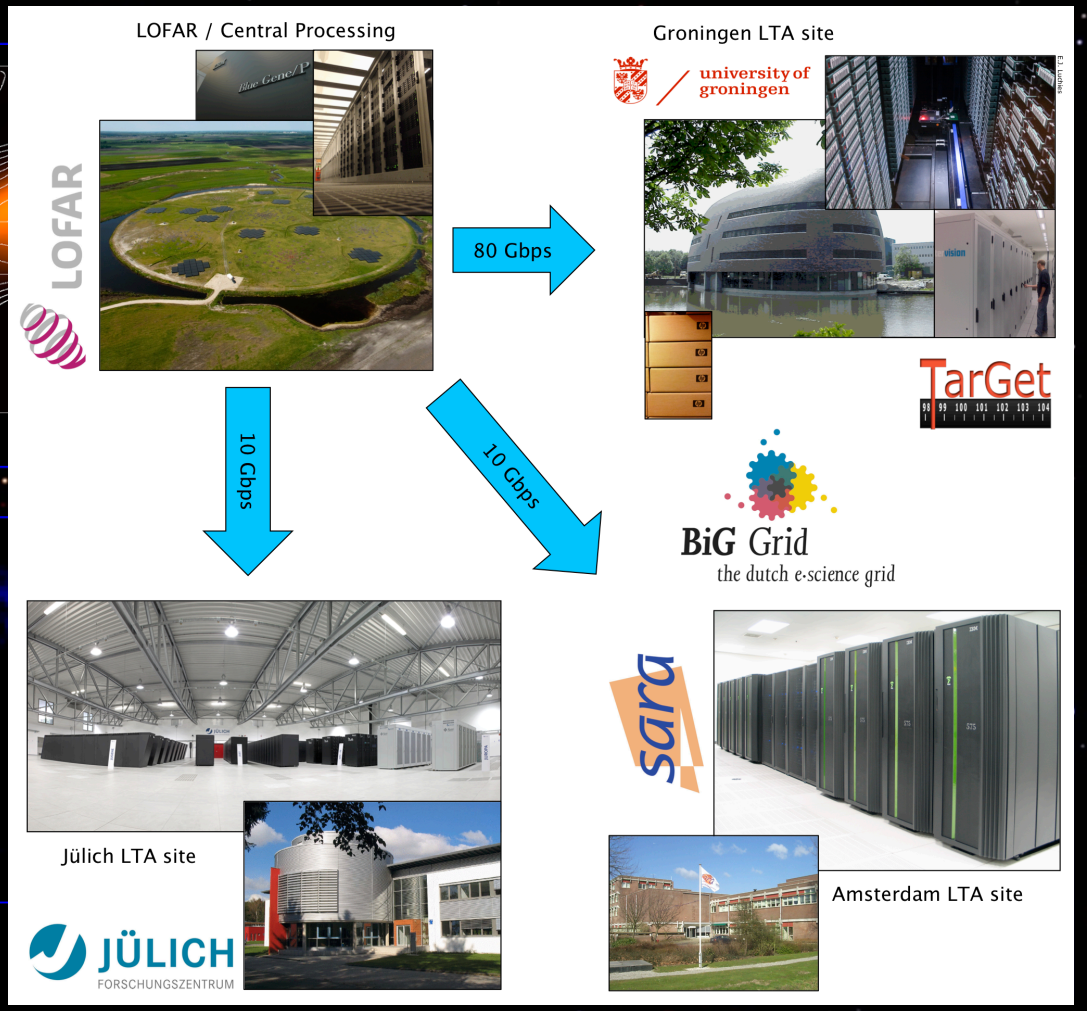
LOFAR

Netherlands Institute for Radio Astronomy

LOFAR Long Term Archive

Status update





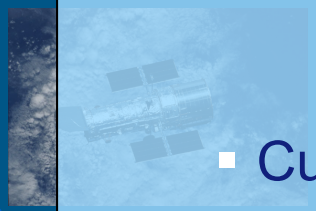
March 6, 2013

LTA Progress

- Ingesting
  - UV-data (raw & processed)
  - Images
- Ready to ingest beam-formed data
  - Speed up needed
- Improved LTA UI provided by Astro-Wise
  - Queries
  - Latest data
  - Stage data for retrieval
- LOFAR software tree built on LTA sites (SARA, NIKHEF, RUG)
  - Currently testing BBS runs
- Pulsar processing on SARA Grid cluster
- Portable Grid client installation available

Groningen/Target

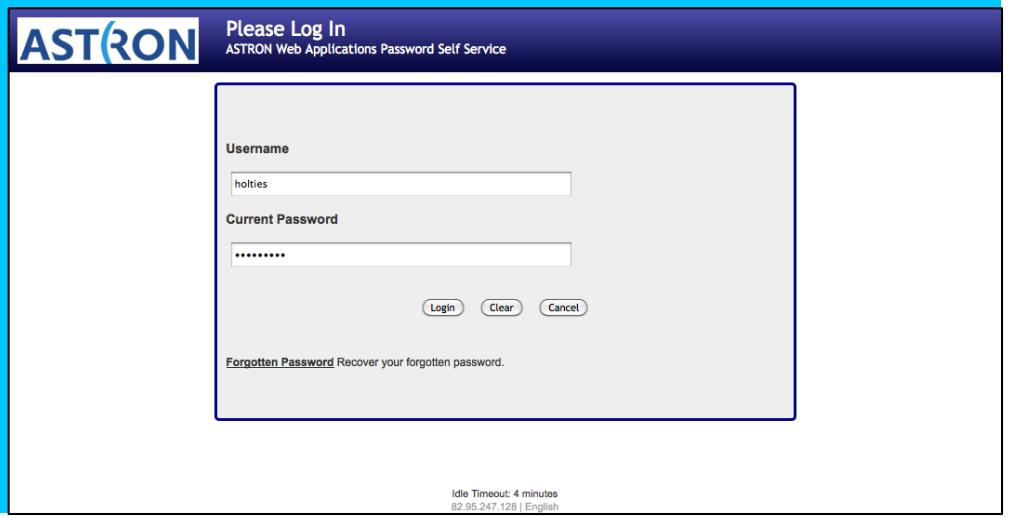
- GPFS filesystem now stable
- 1 Petabyte disk space available
  - + ~400 TB temporary space
- Migration to tape starting
  - 3+ Petabyte additional space
- 40 Gbps connection from CEP (will scale up further to 80 Gbps)
- SRM/Gridftp for data retrieval being tested



- Currently mainly handling data storage for EOR
  - General LTA use when Tape & Data retrieval available

Projects and accounts (recap)

- **Project synchronization**
  - MoM provides LOFAR project administration
  - Provisioned to LTA catalog when an ‘LTA Resource’ (storage/processing) is allocated to project
- **Account synchronization**
  - NorthStar/MoM accounts synchronized with LTA when account is ‘LTA enabled’
    - Automatic for members of project with LTA Resource
  - Can not distribute MoM/NorthStar password hash
    - **User will receive request by mail to generate new password !**



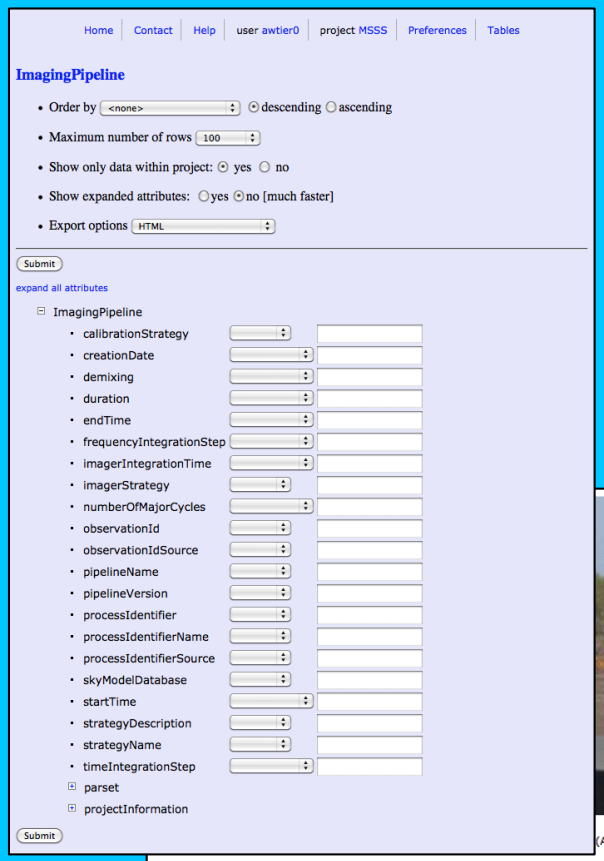
LTA Catalog

(LTA Catalog UI

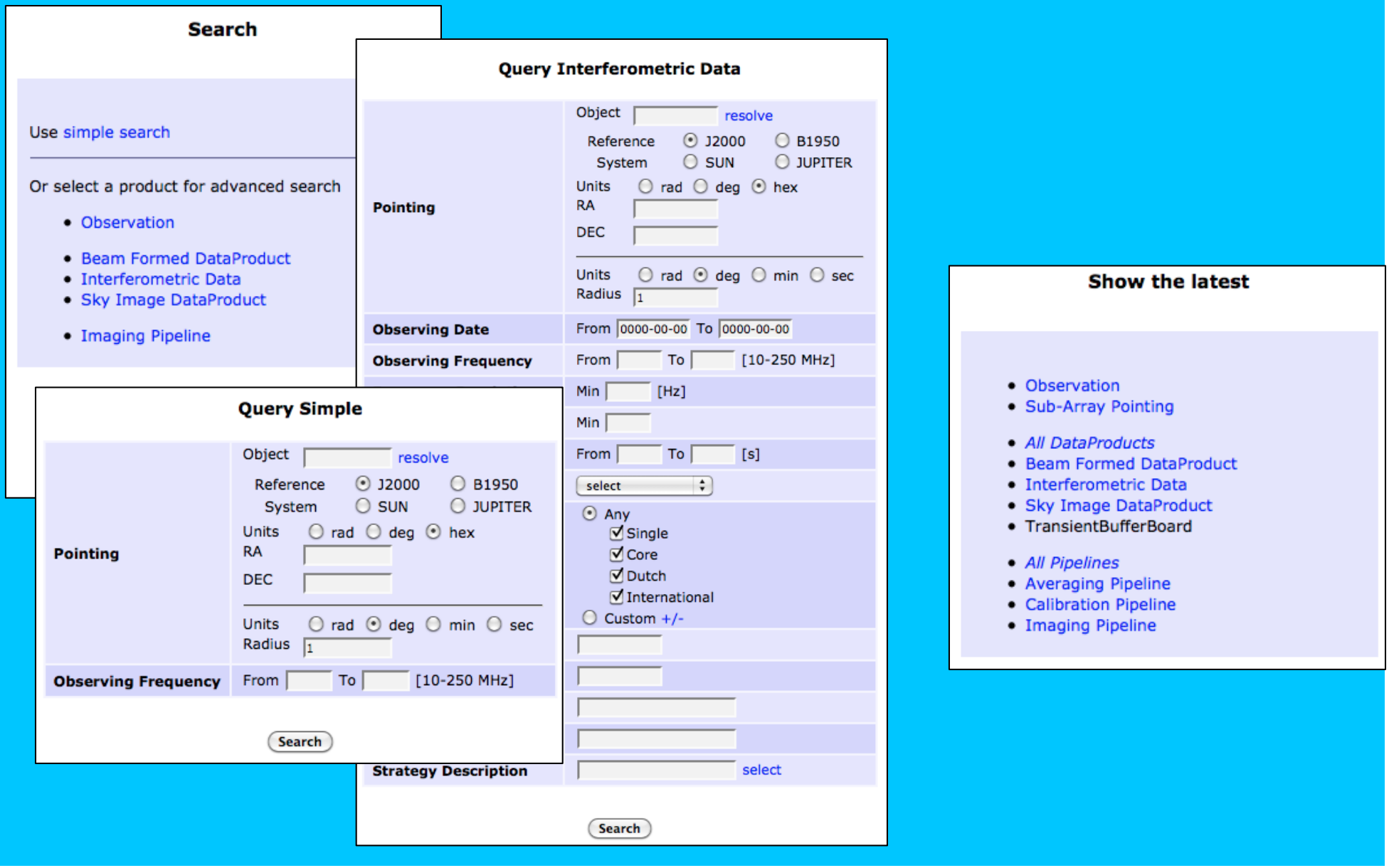
Builds on AstroWise

Several views:
- Web interface
- DB view
- Console

Request download
- Staging request
  plus user notification



LTA Catalog Queries



LTA Catalog
Data Retrieval

Interferometric Data (total 488)

edit columns | stage uris

#	☑	DataProduct Identifier	Target Name	Right Ascension [degrees]	Declination [degrees]	Central Frequency [MHz]	Channel Width [Hz]	Channels Per Subband	Integration Interval [s]	Start Time	Duration [s]	SubArray Pointing Identifier	Subband	Station Subband	Stations	Observations	Pipeline	Derived DataProducts	Ingestion Date
1	☑	4170439	3C48	24.4220808	33.1597594	8.4765625e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	476	434	show	1			2013-02-20 02:07:24
2	☑	4170443	3C48	24.4220808	33.1597594	8.5546875e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	480	438	show	1			2013-02-20 01:56:20
3	☑	4170449	3C48	24.4220808	33.1597594	8.671875e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	486	444	show	1			2013-02-20 01:51:44
4	☑	4170442	3C48	24.4220808	33.1597594	8.5351562e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	479	437	show	1			2013-02-20 01:48:58
5	☑	4170309	3C48	24.4220808	33.1597594	5.4492188e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	346	279	show	1			2013-02-20 01:48:39
6	☑	4170397	3C48	24.4220808	33.1597594	7.5195312e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	434	385	show	1			2013-02-20 01:43:32
7	☑	4170450	3C48	24.4220808	33.1597594	8.6914062e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	487	445	show	1			2013-02-20 01:42:20
8	☑	4170448	3C48	24.4220808	33.1597594	8.6523438e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	485	443	show	1			2013-02-20 01:37:36
9	☑	4170441	3C48	24.4220808	33.1597594	8.515625e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	478	436	show	1			2013-02-20 01:36:52
10	☑	4170432	3C48	24.4220808	33.1597594	8.3398438e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	469	427	show	1			2013-02-20 01:36:24
11	☑	4170446	3C48	24.4220808	33.1597594	8.6132812e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	483	441	show	1			2013-02-20 01:36:15
12	☑	4170351	3C48	24.4220808	33.1597594	6.3476562e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	388	325	show	1			2013-02-20 01:35:02
13	☑	4170436	3C48	24.4220808	33.1597594	8.4179688e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	473	431	show	1			2013-02-20 01:34:26
14	☑	4170444	3C48	24.4220808	33.1597594	8.5742188e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	481	439	show	1			2013-02-20 01:34:24
15	☑	4170437	3C48	24.4220808	33.1597594	8.4375e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	474	432	show	1			2013-02-20 01:34:24
16	☑	4170445	3C48	24.4220808	33.1597594	8.59375e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	482	440	show	1			2013-02-20 01:32:40
17	☑	4170447	3C48	24.4220808	33.1597594	8.6328125e-05	3.051758	64	1.00139	1899-12-31 00:00:00	35699.0	213379	484	442	show	1			2013-02-20 01:31:34

The following file(s) are requested for download. You will receive an email when the files can be retrieved.

Size	Filename
43.0 GB	L94481_SAP001_SB476_uv.MS_203015f1.tar
43.0 GB	L94481_SAP001_SB480_uv.MS_0b5e2a4b.tar
43.0 GB	L94481_SAP001_SB486_uv.MS_22ee1140.tar
129.0 GB	*total*

Mail From: <noreply@astron.nl>

Close | Reply | Reply All | Forward | Read Later

Mail | Properties | Personalize | Message Source

From: <noreply@astron.nl> 2/3/2013 09:58 PM
To: Hanno Holties
Subject: Data ready for retrieval

Dear Hanno Holties,

Your data retrieval request with id 45 has been staged and is ready for retrieval.

List of files:
srm://lofar-srm.fz-juelich.de:8443/pnfs/fz-juelich.de/data/lofar/ops/LC0_002/L83093/L83093_SAP000_SB153_uv.MS.tar

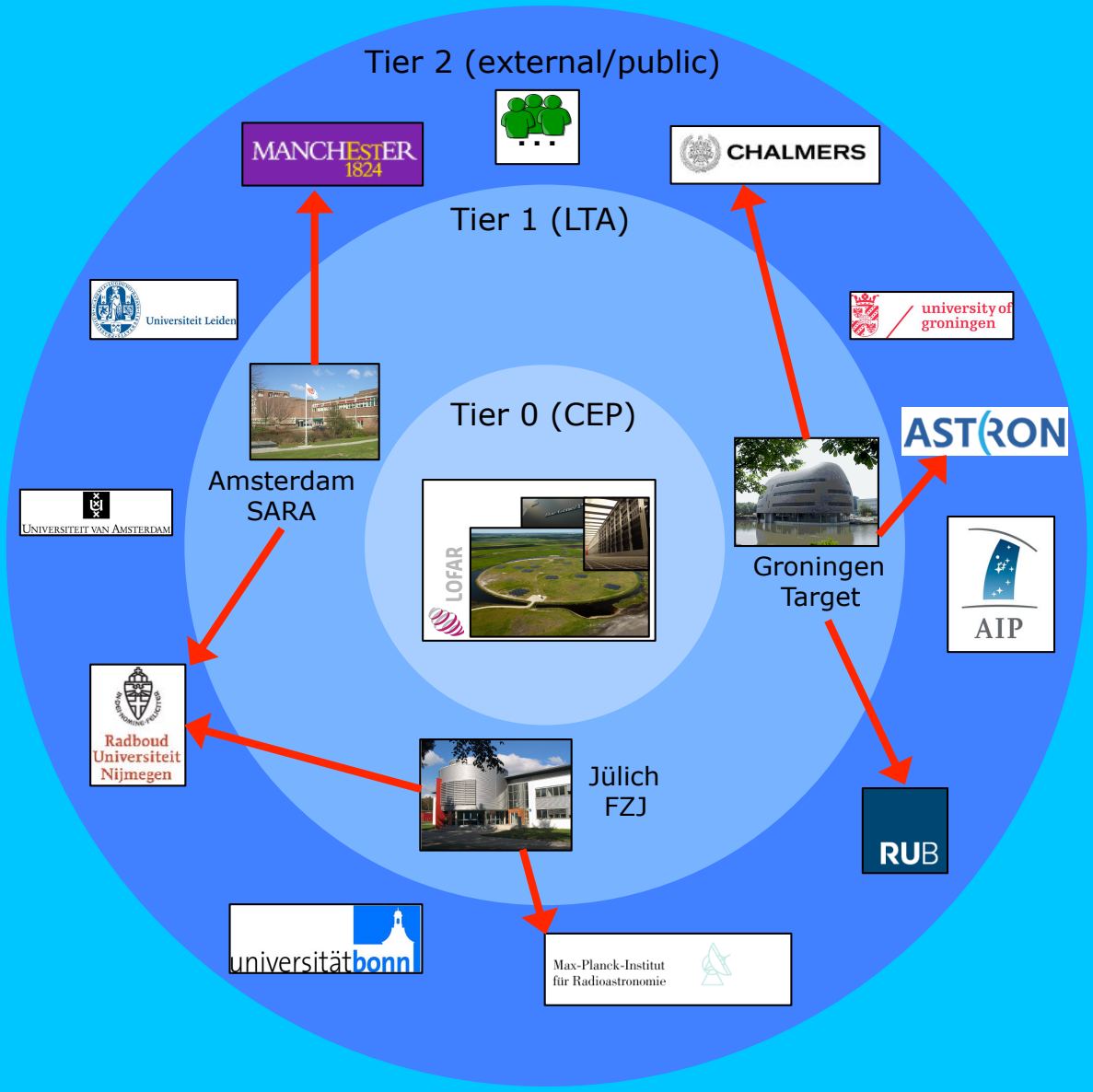
The attached files can be used to retrieve the staged files.
For more information visit http://www.lofar.org/wiki/doku.php?id=public:lta_howto

This mail has been automatically generated by the ASTRON/LOFAR LTA staging service.
Do not reply to this message. If you have any questions or remarks, please
contact sciencesupport@astron.nl and provide the id of the request in your message.

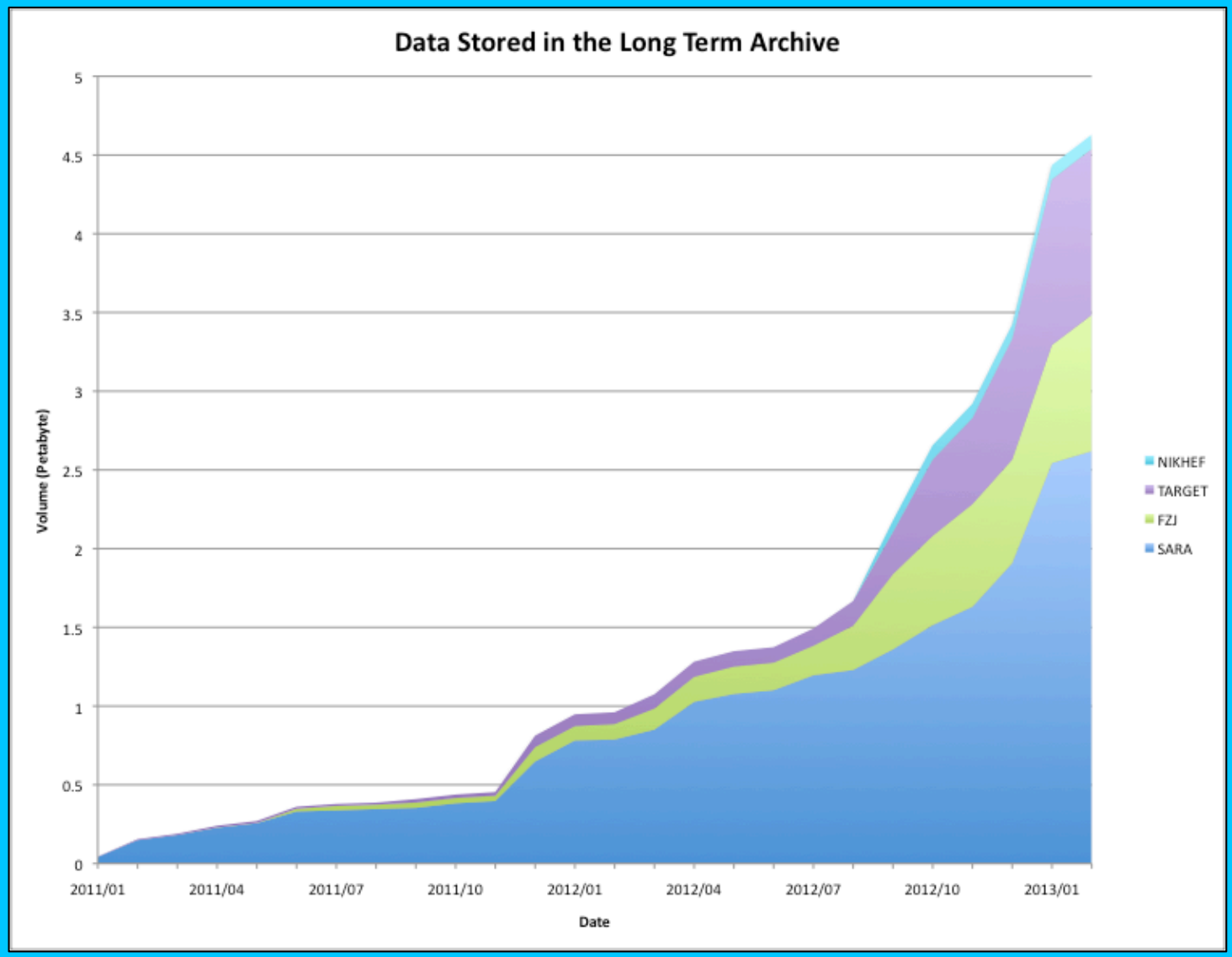
Name	Size	Type	Modified
Message	4KB	Message Attachment	2/3/2013
html.txt	187 Bytes	File Attachment	
srm.txt	153 Bytes	File Attachment	

LTA data retrieval (recap)

- **Web based download server**
  - ‘LTA enabled’ ASTRON/ LOFAR account
  - Low threshold
  - Primarily for few files & smaller volumes
- **GridFTP**
  - Requires grid user certificate
  - More robust; superior performance
  - Requires grid client installation
  - Portable client installation available!



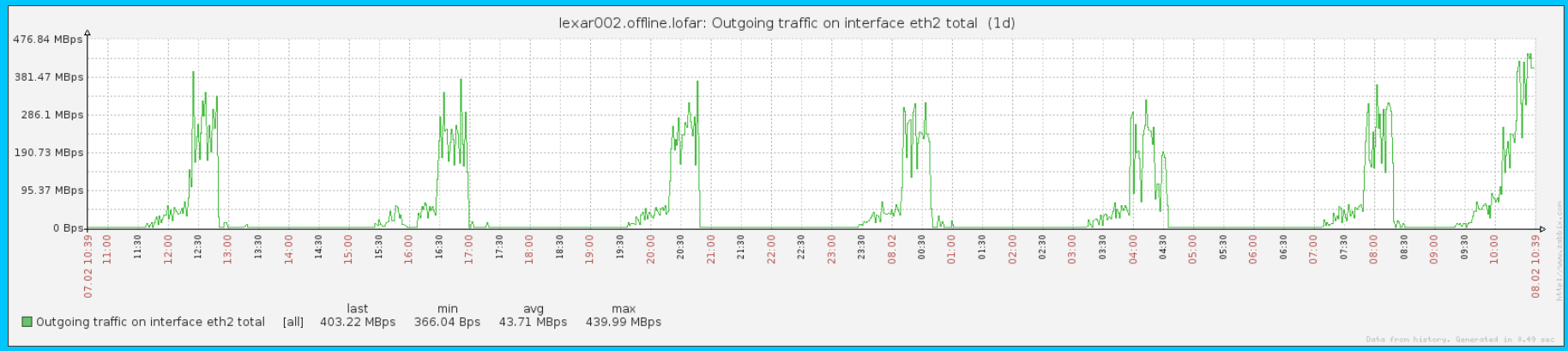
The LOFAR Long Term Archive (LTA)



Data products ingested into the LTA

- **February 2013: start of processed data ingests**
  - Smaller files
  - More metadata

2012/07	79043
2012/08	7878
2012/09	36622
2012/10	161019
2012/11	164974
2012/12	32276
2013/01	80530
2013/02	344590

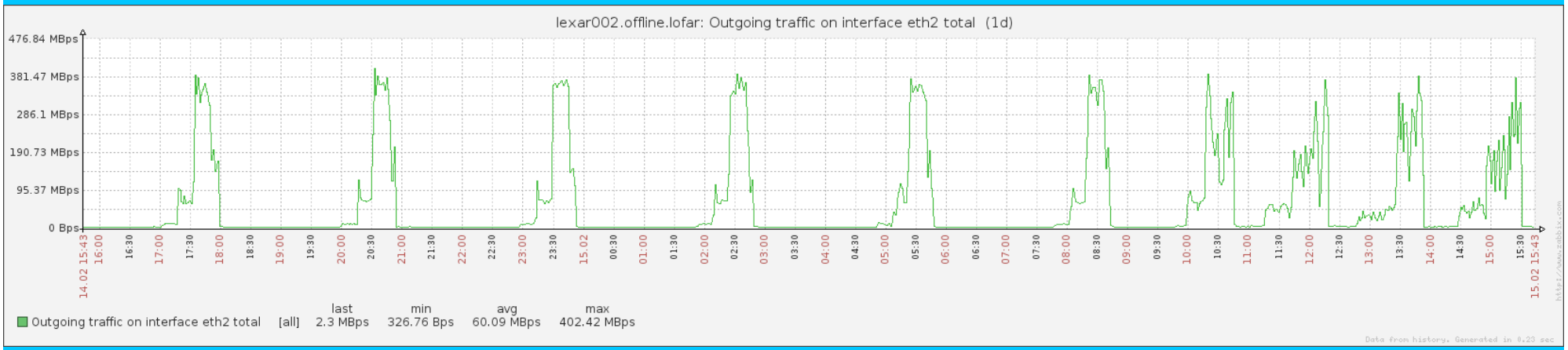


Speeding up the ingest

(Multithreading Astro-Wise: factor 4 overall

	Average Durat	Observation da	Pipeline data p
Get storage tic	109	52	229
Transfer file	51	57	38
Send checksur	125	53	277
get SIP from M	4	3	6
send SIP to AV	126	39	307
update status	21	12	39
Total	**436**	**216**	**896**

	Average Durat	Observation da	Pipeline data p
Get storage tic	66	67	64
Transfer file	43	49	30
Send checksur	1	1	1
get SIP from M	4	2	9
send SIP to AV	16	3	41
update status	2	2	2
Total	**132**	**125**	**147**



(Further speed up of factor 8-10 required to keep up with observing program

(In progress