

Astro-WISE

an Astronomical Wide-field Imaging
System for ~~Europe~~

Everyone

John P. McFarland & Edwin A. Valentijn
for
the Astro-WISE Consortium

OmegaCEN, Kapteyn Astronomical Institute
Groningen, NL

16 October 2006

ADASS XVI

`portal.astro-wise.org`

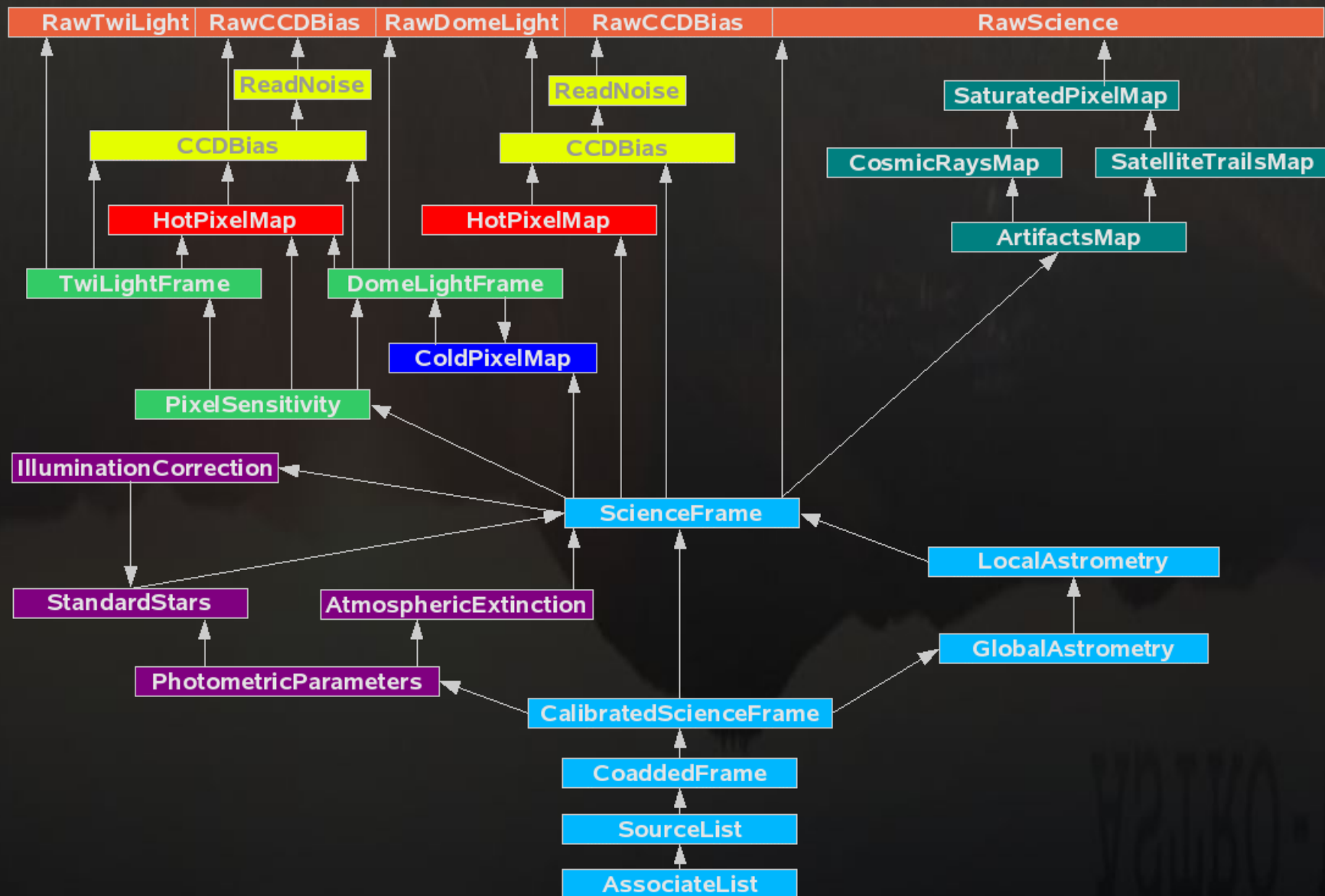
Requirements

- Connect small internationally distributed workgroups
- Process extremely large datasets
 - facilitate handling, calibration, quality control, pipelining, user-tuned research, archiving, disseminating results
 - 100s of terabytes of image data
 - 10s of terabytes of catalog data
- Distribute capabilities
 - federation of database/dataserver, compute cluster
`portal.astro-wise.org`

New Paradigm

- Classical Paradigm
 - forward chaining
 - “tier” architecture
 - driven by raw data
 - process in pipeline
 - operators push data
 - results in releases
 - static archive
 - raw data is obsolete
- Astro-WISE Paradigm
 - *backward chaining*
 - “target” architecture
 - driven by user query
 - process on-the-fly
 - users pull data
 - information system
 - dynamic archive
 - raw data is sacred

Object Model



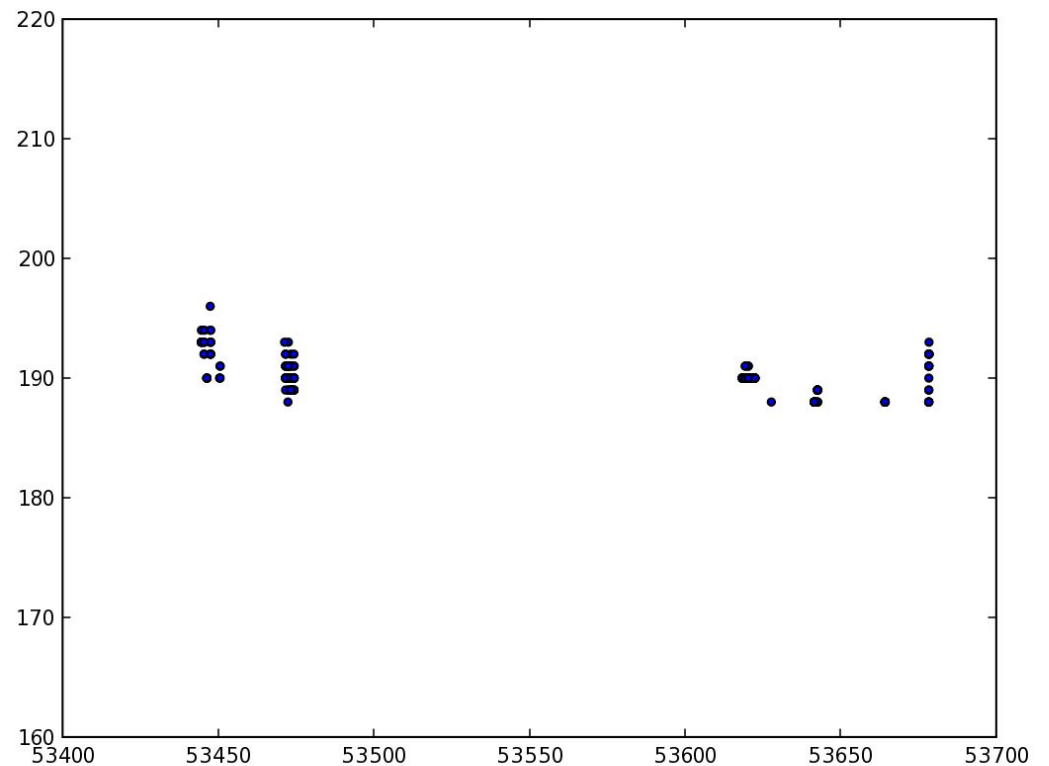
Quality Control

- Objects
 - verify()
 - compare()
 - inspect()
- Dependency chain
- Trend analysis for free . . .
 - per object/class
 - complex queries (multiple objects/classes)

5LS

```
awe>  
awe> q = RawBiasFrame.chip.name == 'ESO_CCD_#92'  
awe> x = [f.MJD_OBS for f in q]  
awe> y = [f.overscan_x_stat.median for f in q]  
awe> pylab.scatter(x,y)  
awe> pylab.ylim(160,220)  
awe>
```

Shell Shell No. 2



Astro-Wise
Target Processing

Contact
wjvriend@astro.rug.nl

DB User
[awjmcfarland](#)

Help
[Getting Started](#)

Target	Querying	Filter	Chip												
<input type="checkbox"/> MasterBias <input type="checkbox"/> MasterFlat <input checked="" type="checkbox"/> RegriddedFrame <input type="checkbox"/> CoAddedFrame <input type="checkbox"/> SourceList <input type="checkbox"/> Advanced	<input type="checkbox"/> Serial processing <input checked="" type="checkbox"/> Image pipeline <input type="checkbox"/> Depth <input type="text" value="1"/> <input type="checkbox"/> Full <input type="checkbox"/> Parameters <input type="checkbox"/> Configure	<input type="text" value="<none>"/> <table border="1"> <tr> <th>Date Obs</th> <th>Time</th> </tr> <tr> <td><input type="text" value="0000-00-00"/></td> <td><input type="text" value="00:00:00"/></td> </tr> </table>	Date Obs	Time	<input type="text" value="0000-00-00"/>	<input type="text" value="00:00:00"/>	<input type="text" value="si001s"/> <table border="1"> <tr> <th>Object</th> <th>RA</th> <th>DEC</th> <th>+/-</th> </tr> <tr> <td><input type="text" value="select"/></td> <td><input type="text" value=""/></td> <td><input type="text" value=""/></td> <td><input type="text" value="0.5"/></td> </tr> </table>	Object	RA	DEC	+/-	<input type="text" value="select"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value="0.5"/>
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[graphical select](#)

Project

Instrument

Single host (status)

Parallel host (status)

Welcome to Process

This service visualizes the status of objects in the database and provides the possibility to (re)process them. Not all possible targets are currently supported, they are grey-ed out.

- Login (only once) see upper left: DB user
- Select a project
- Select a target
- Specify parameters; filter, date, object name, ra or dec (or use select)
- Hit Search
- Found (non) existing objects can be processed on the selected DPU
- For more help see the help section in the top left of the screen

Changes:

- 19 jul 2006 - Input frame(s) can now be chosen for BiasFrame, DomeFlatFrame, TwilightFlatFrame, MasterFlatFrame, CoaddedRegriddedFrame and SourceList. These are shown on a nightly basis, use graphical select link, and a detailed view, click on a night.
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Processing

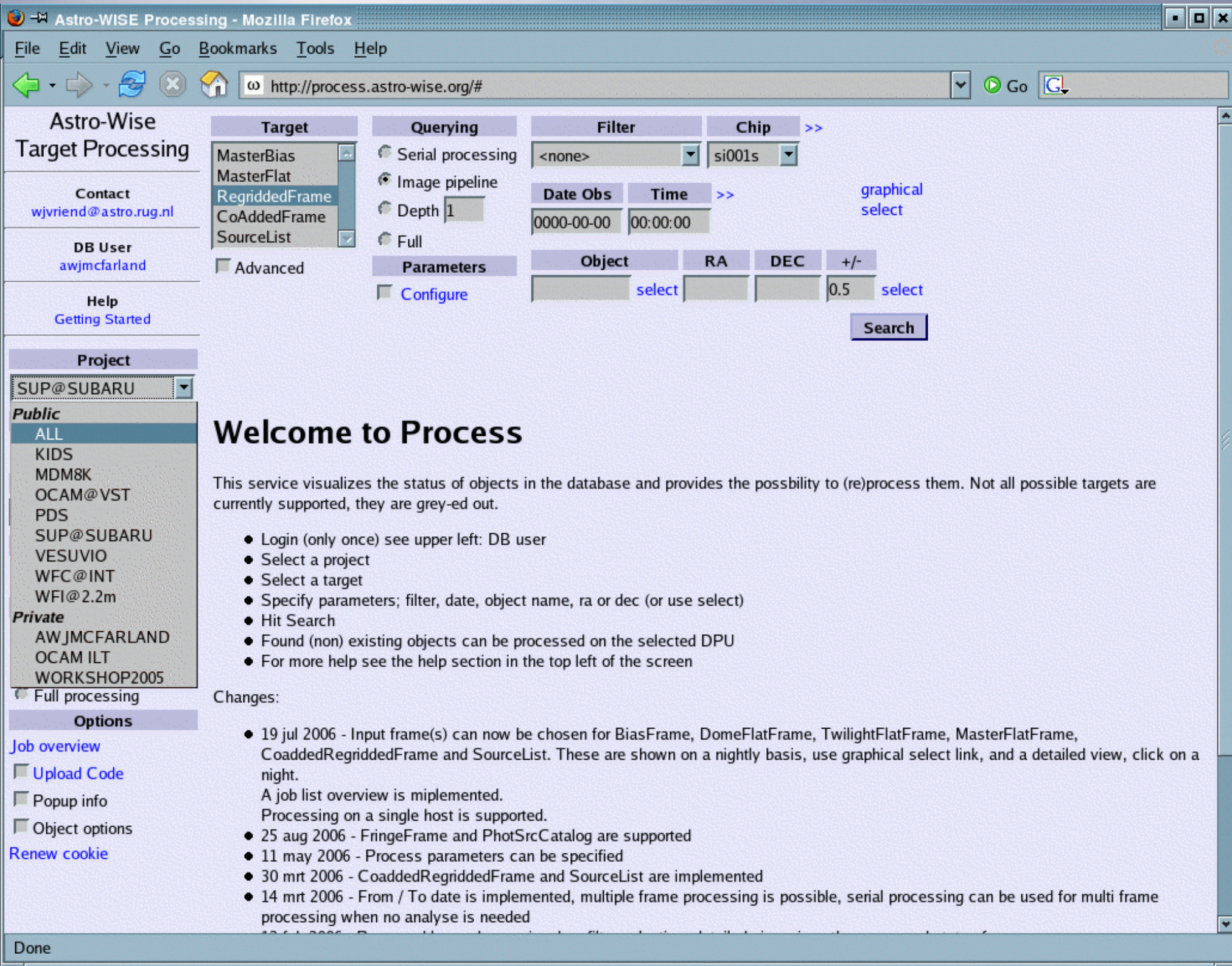
Image pipeline
 Depth
 Full processing

Options

[Job overview](#)

Upload Code
 Popup info
 Object options

[Renew cookie](#)



Astro-Wise Target Processing

Contact
wjvriend@astro.rug.nl

DB User
[awjmc farland](#)

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Project

SUP@SUBARU

Public

- ALL
- KIDS
- MDM8K
- OCAM@VST
- PDS
- SUP@SUBARU
- VESUVIO
- WFC@INT
- WFI@2.2m

Private

- AWJMC FARLAND
- OCAM ILT
- WORKSHOP2005

Full processing

Options

Job overview

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- Popup info
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[Renew cookie](#)

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MasterBias MasterFlat RegriddedFrame CoAddedFrame SourceList	<input type="radio"/> Serial processing <input checked="" type="radio"/> Image pipeline <input type="radio"/> Depth <input type="text" value="1"/> <input type="radio"/> Full	<none> <table border="1"><tr><th>Date Obs</th><th>Time</th></tr><tr><td>0000-00-00</td><td>00:00:00</td></tr></table>	Date Obs	Time	0000-00-00	00:00:00	si001s				
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Object	RA	DEC	+/-								
<input type="text" value="select"/>	<input type="text"/>	<input type="text"/>	0.5 <input type="text" value="select"/>								
<input type="button" value="Search"/>											

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Done

Astro-Wise
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DB User
 awjmcfarland

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[graphical select](#)

Project

Instrument

Site

Parameter

Image
 Image
 Depth
 Full processing

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Options

[Job overview](#)

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Popup info

Object options

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		Object	RA DEC +/-
		<input type="text" value=""/> select	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value="0.5"/> select
		Search	

Project
SUP@SUBARU

Instrument
SUP

Single host (status)
coadddpu.astro.ru...

Single
local machine
coadddpu.astro.ru...

Parallel
dpu.hpc.rug.astro...
dpu.astro.uni-bon...

Depth

Full processing

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- Options**
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awjmcFarland

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Target	Querying	Filter	Chip
MasterBias MasterFlat RegriddedFrame CoAddedFrame SourceList	<input type="checkbox"/> Serial processing <input type="checkbox"/> Image pipeline <input type="checkbox"/> Depth 1 <input checked="" type="checkbox"/> Full	#844 CousinsR	ccd50
<input type="checkbox"/> Advanced	Parameters	Date Obs 2005-05-31	Time 04:53:06
	<input type="checkbox"/> Configure	Object select	RA DEC +/- 0.5 select

[graphical select](#)

[Search](#)

Project
WFI@2.2m

Instrument
WFI

Single host (status)
coaddpu.astro.ru...

Parallel host (status)
dpu.hpc.rug.astro...

Possible targets

0	#844 CousinsR	31 May 2005 04:53:06	view all chips	Process
---	---------------	----------------------	--------------------------------	-------------------------

- (+) (-) [] 0.0 RegriddedFrame (to be built)
 - [] 0.1 AstrometricParameters (outdated)
 - [] 0.1 ReducedScienceFrame (outdated)
 - [+] 1.1 BiasFrame (outdated)
 - [+] 1.2 ColdPixelMap
 - [+] 1.3 MasterFlatFrame (outdated)
 - 1.4 FringeFrame (null)
 - [+] 1.5 HotPixelMap (outdated)
 - [] 1.6 IlluminationCorrectionFrame (new version available)
 - [] 2.1 IlluminationCorrection (not checked)
 - 0.7 RawScienceFrame
 - [] 1.2 GainLinearity
 - 2.1 BiasFrame (null)
 - [+] 1.3 PhotometricParameters
 - [+] 0.4 ReducedScienceFrame (outdated)

- [Log File](#)
- [+ Statistics](#)
- [+ All Object Types](#)
- [+ All Used Objects](#)

Processing

Image pipeline
 Depth 0
 Full processing

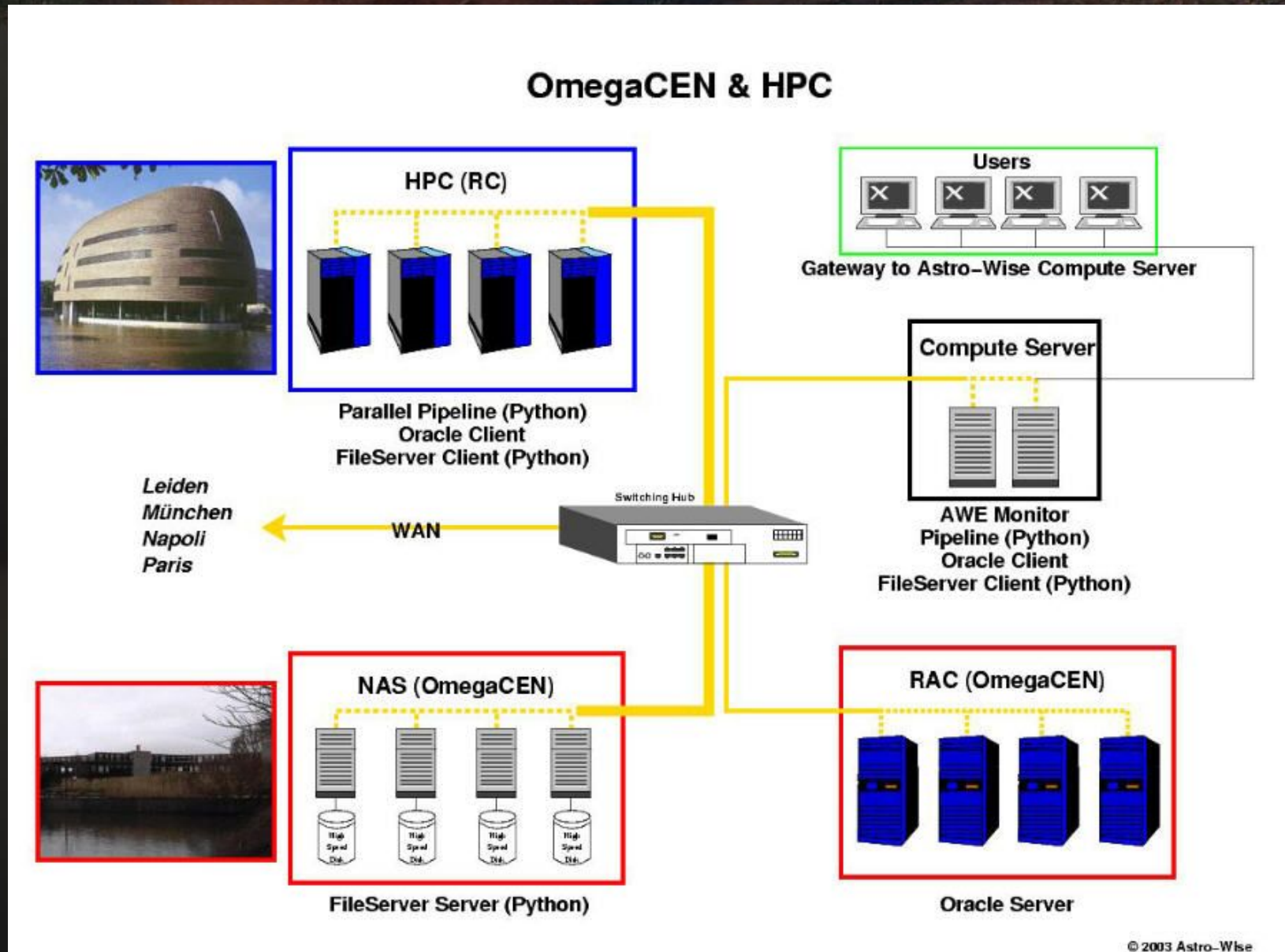
Options

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Virtual Survey Telescope



To the Future

- Released: 1 December 2006
- Ready for new data sources and projects
 - WENSS radio data in preparation for LOFAR
 - SuprimeCAM at Subaru
 - COMA/HST Legacy Survey
- Multi-disciplinary
 - Dutch Cultural Heritage program: scanned documents
 - pattern recognition through A.I. using BlueGene