esa

Joint meeting of the Classification, Science Alerts and Variable Stars Working Groups 15-16 April 2004

# Gaia Parameter Database

http://www.rssd.esa.int/gaia/paramdb

J. de Bruijne, U. Lammers, M. Perryman

[Access to the database requires a login & password. Contact gaialib@rssd.esa.int for the relevant info.]



esa

Joint meeting of the Classification, Science Alerts and Variable Stars Working Groups 15-16 April 2004

## Gaia Parameter Database: Purpose

- The Gaia parameter database is a controlled, up-to-date repository of all parameters relevant to Gaia.
- The database contains satellite design, mathematical, physical & astronomical constants and parameters (scalar & multi-dimensional).
- Harmonise the parameters used in work performed by >10 industrial contractors, >20 working groups,….
- To be used by scientific, technical & industrial communities (GDAAS, GASS already implementing it).

## Gaia Parameter Database: Features I

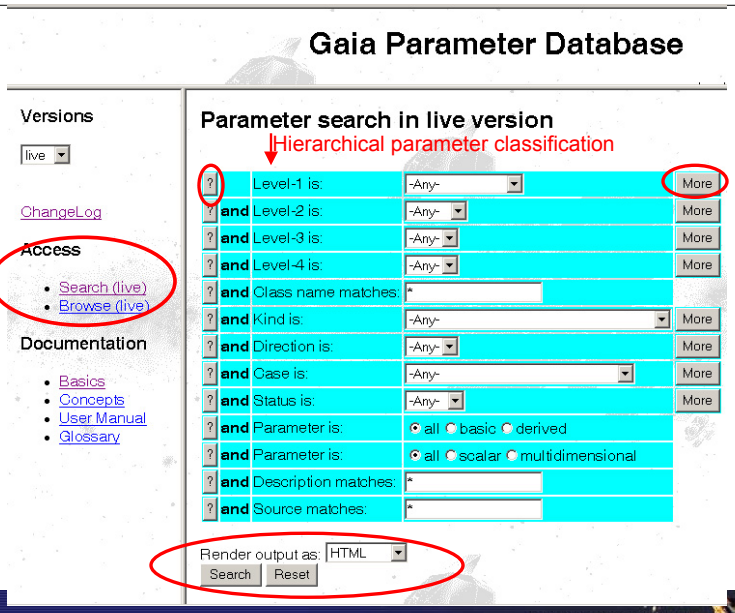
- Actively maintained at ESTEC
- Reflects the most up-to-date & scientifically accurate status of Gaia parameters (~1300 entries)
- Contains fundamental & derived parameters, categorized as:
  Ground Segment, Satellite, Mission, Astro, Spectro, Nature
- Contains scalar & multi-dimensional data sets
- Approved by Gaia Science Team and relevant Working groups



## Gaia Parameter Database: Features II

- Web-based interface
- Requires login/password [Contact gaialib@rssd.esa.int for the relevant info.]
- Access on-line (browser) or off-line (eg wget)
- Search or browse access (live version only)
- Choice of output formats:
  - html
  - xml
  - Fortran-77, -90
  - ANSI-C
  - C++
  - Java
  - CSV (comma separated values)
  - Latex, pdf

# Gaia Parameter Database: www interface






# Gaia Parameter Database: sample query

- Simple query for demonstration purposes:
- How many CCDs in the AF field?
  - Choose: Level 1 = “Astro”
  - Choose: Level 2 = “AF”
  - Choose: Kind = “number”
  - Choose: Status = “confirmed”

The latter two options serve to refine the query but are not mandatory.


Joint meeting of the Classification, Science Alerts and Variable Stars Working Groups 15-16 April 2004
Gaia
Karen O'Flaherty
European Space Agency

# Gaia Parameter Database: Results

Parameter name

Status: confirmed, TBC, TBD

Long description

**Parameter search results (DB Version: -live-:2004-04-13T22:54:31)**

| Name | Value | Unit | Basic | Scalar | Status | Description | Source | Expression | LaTeX label | Last modifie |
|---|---|---|---|---|---|---|---|---|---|---|
| :Astro:AF:CCD_Number_AL | 11 | | true | true | CONF | Number of CCDs in AF in the along-scan direction (i.e., number of CCD strips in AF) | Astrium, 15 January 2004, 'Astro focal plane assembly: requirements specification, compliance matrix, and verification matrix', GaiaFPA.SP.00147.T.ASTR, issue 3, revision 1, Requirement FPA120 | | | 2004-03-01T09:0 |
| :Astro:AF:CCD_Number | 110 | | false | true | CONF | Number of CCDs in AF | | CCD_Number_AL * :Astro:CCD_Number_AC | | 2004-03-01T09:0 |

Basic or derived parameter

Source of the value

Expression: if it is a derived parameter

Joint meeting of the Classification, Science Alerts and Variable Stars Working Groups 15-16 April 2004



# Gaia Parameter Database: multi-dimensional data

•Simple query for demonstration:What is the QE for the Astro CCDs?
Choose Level 1 = “Astro”, Kind = “QE”

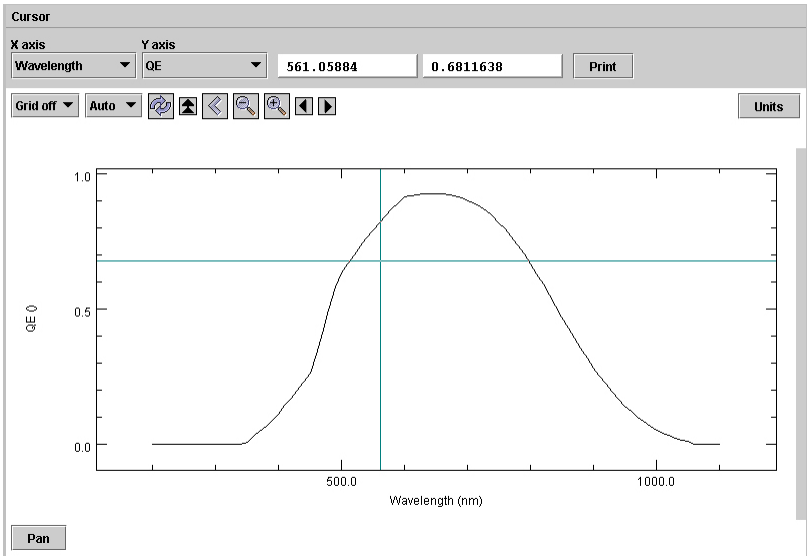
| Name | Value | Unit | Basic | Scalar | Status | Description | Source | Expression | LaTeX label | Last modified |
|---|---|---|---|---|---|---|---|---|---|---|
| :Astro:CCD_QE_160K | Download Plot | | true | false | CONF | CCD quantum efficiency (QE), as modeled by e2v technologies, for T = 160 K. First column: wavelength \lambda (in nm; from 200.0 to 1100.0). Second column: QE, at T = 160 K. Note that the QE for \lambda = 350, 360, 370, 380, and 390 nm has been changed from 0.081, 0.080, 0.084, 0.096, and 0.105 (original) to 0.010, 0.030, 0.050, 0.070, and 0.090 (present). This change, although leading to somewhat conservative QE estimates, removes the discontinuity around \lambda = 400 nm that is present in the original e2v-modelled data | T. Eaton and D. Morris (e2v technologies), 16 April 2003, 'Astro/AF & Spectro/MBP CCDs performance assessment report', Gaia-e2v-RP-006, issue 3, Appendix 4.2, p. 21 (device total thickness t = 16 micrometer and AR coating centered on 650 nm). See also A. Short, J.H.J. de Bruijne, 26 September 2003, 'CCD QE and MTF', Gaia-AS-002 | | QE (\lambda) | 2004-03-01T09:00:00 |

**Download the data in FITS format**

**Plot the data for a quick view**

Joint meeting of the Classification, Science Alerts and Variable Stars Working Groups 15-16 April 2004

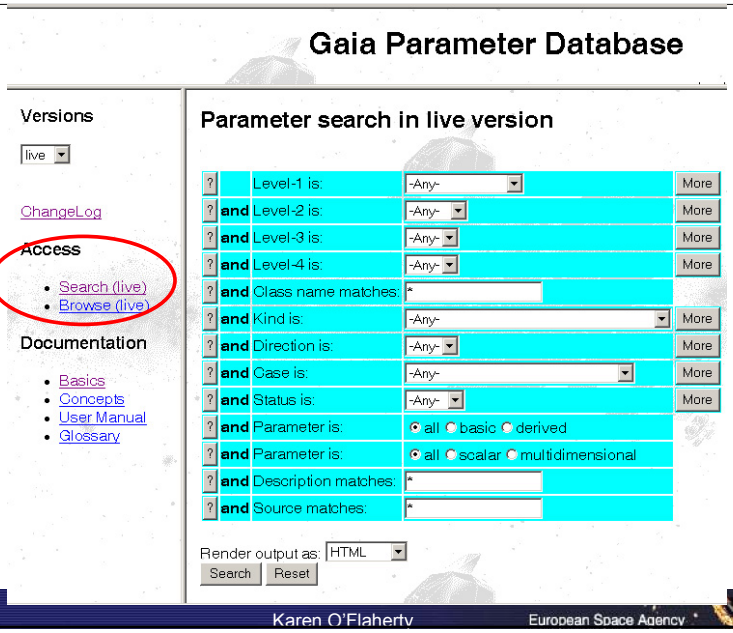
## Gaia Parameter Database: Plot of multi-dimensional data







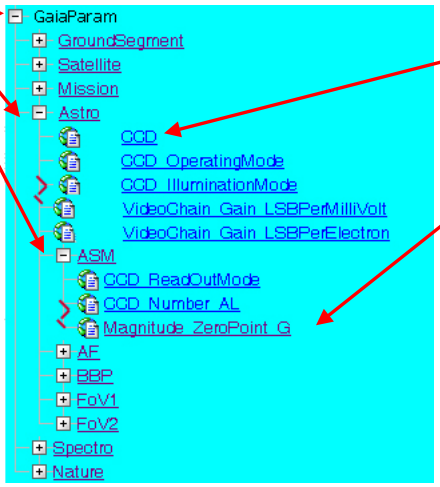

## Gaia Parameter Database: www interface



# Gaia Parameter Database: Access/Browse

Joint meeting of the Classification, Science Alerts and Variable Stars Working Groups 15-16 April 2004

Expandable nodes provide access through parameter hierarchy



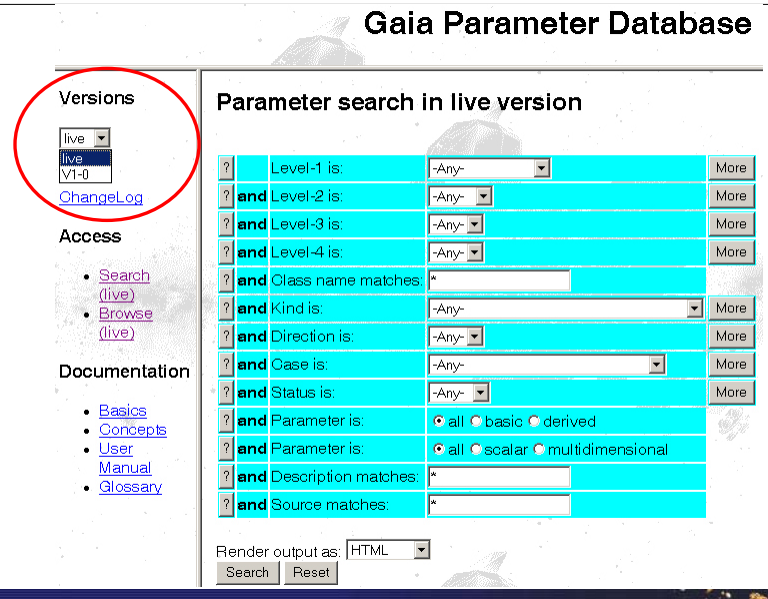

Click on parameter name to access full info – data returned as for search

Browse the parameter database



# Gaia Parameter Database: Versions

Joint meeting of the Classification, Science Alerts and Variable Stars Working Groups 15-16 April 2004



## Gaia Parameter Database: Versions

- "Live" gives the latest value of all parameters – suitable for interactive use.
- For software applications use a controlled release of the database (currently V1-0).
- New versions released infrequently ~ 2/3 per year.



## Gaia Parameter Database: Documents

- The Gaia Parameter Database – Technical users manual
  [Author: U. Lammers; Livelink (GAIA-UL-001)]
- A proposal for a Gaia parameter database
  [Authors: J. de Bruijne, U. Lammers, M.A.C. Perryman; Livelink (GAIA-JDB-007)]

These documents are also available directly from the parameter database web pages.

# Gaia Parameter Database: Feedback

- Feedback on content and use is welcomed
- Proposals for new parameters welcomed
- Questions about the database should be directed to:

gaialib@rssd.esa.int



Joint meeting of the Classification, Science Alerts and Variable Stars Working Groups 15-16 April 2004

# www.rssd.esa.int/gaia

Gaia Karen O'Flaherty European Space Agency