

VOGCLUSTERS

A web application for globular clusters

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The context...

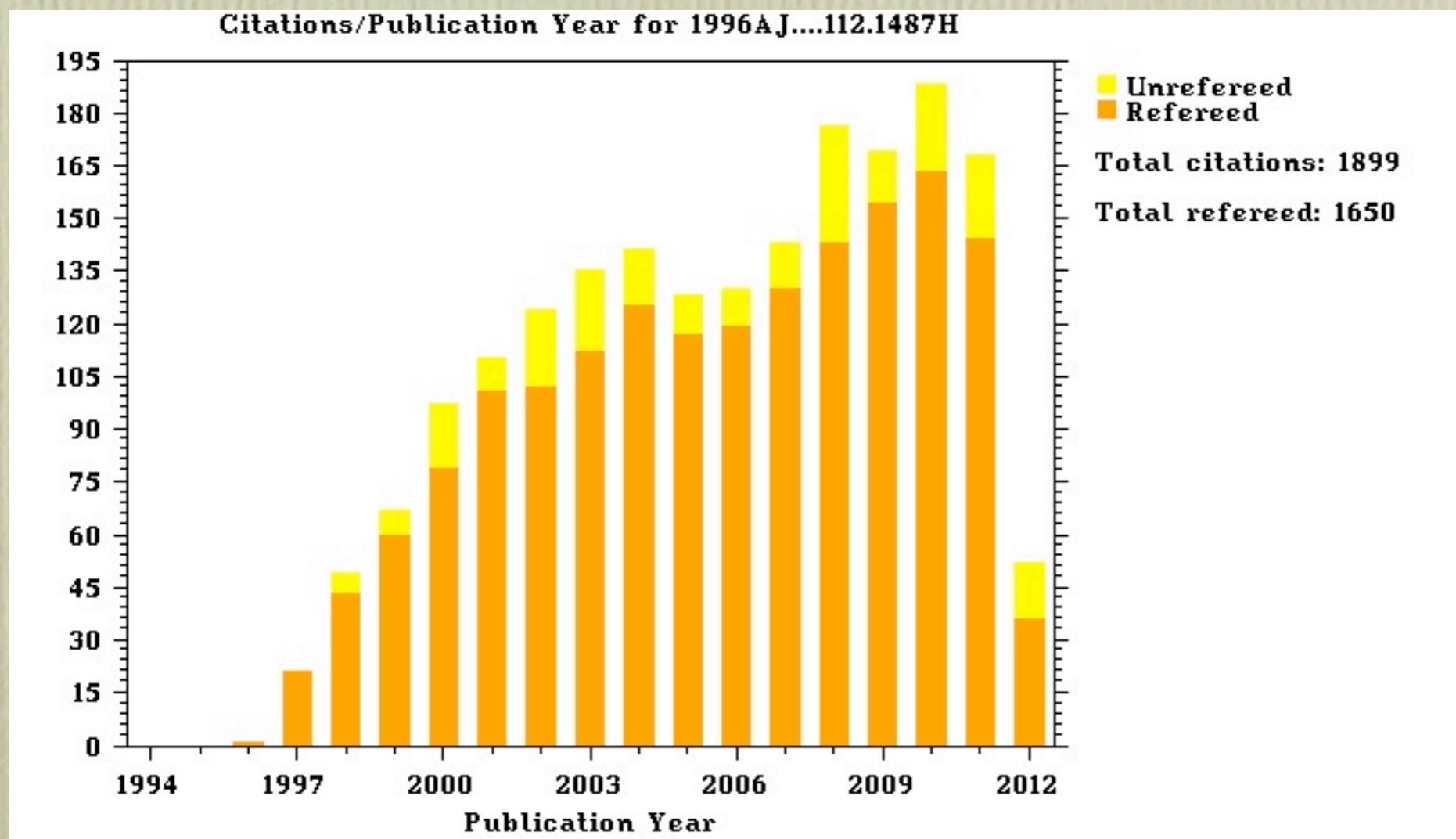
- Hand in hand with the progress of astronomical instruments, the amount of data and parameters for the galactic globular clusters becomes larger and larger
- Problems:
 - Fragmentation of data
 - Heterogeneity of archives



A uniform archive is **required** by scientific community

W.E. Harris, *A Catalog of Parameters for Globular Clusters in the Milky Way*

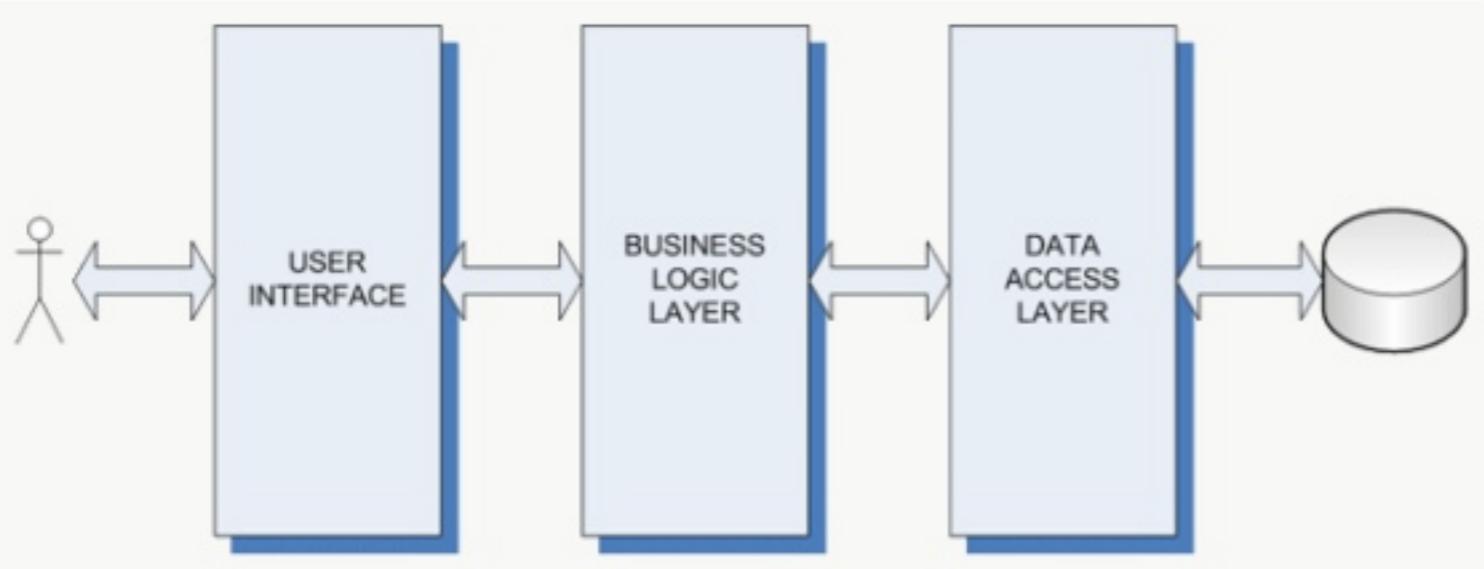
Astronomical Journal 1996, v.112, p.1487



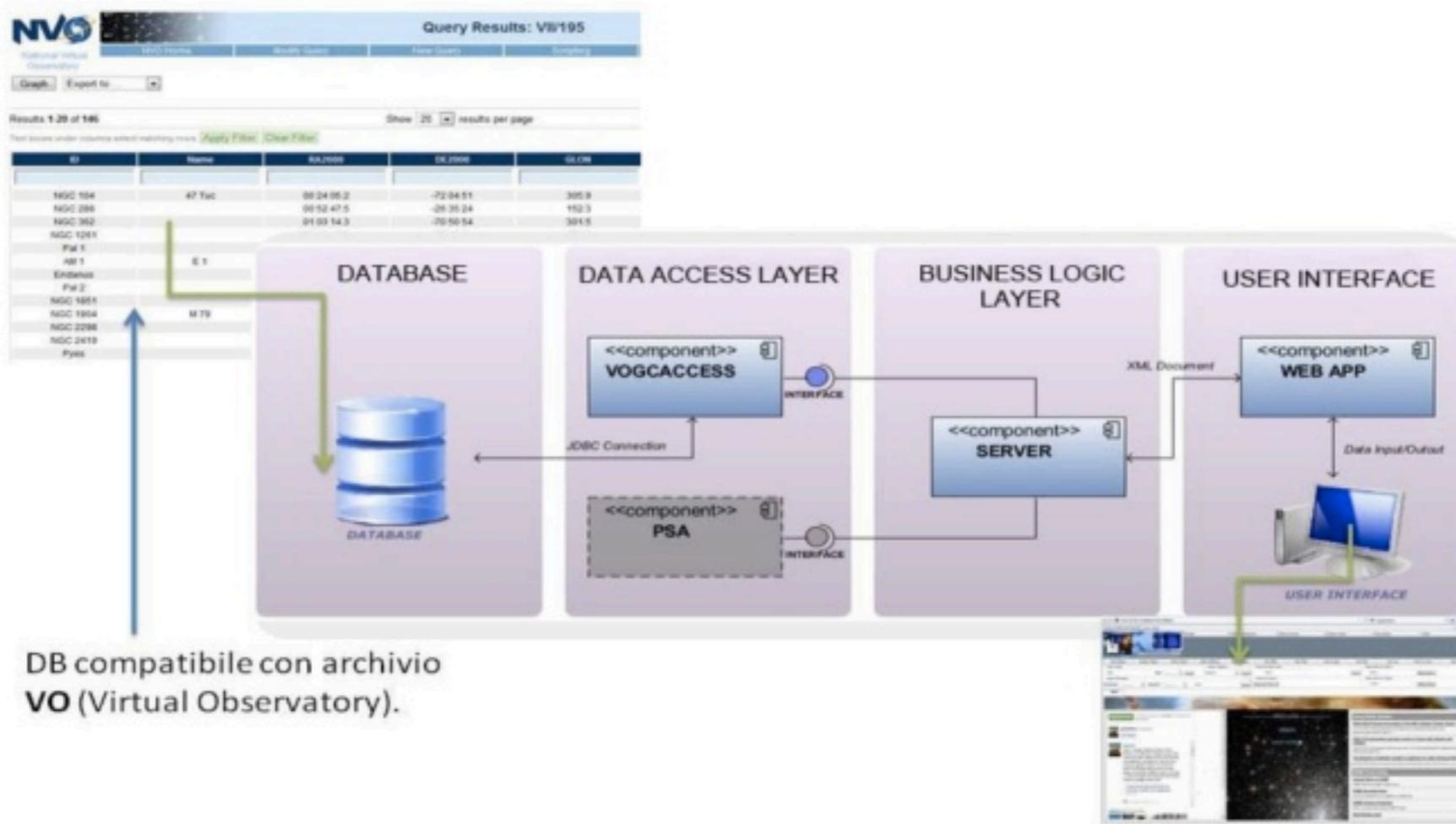
Our project

- VOGCLUSTERS is intended as a web application for Data and Text Mining focused on globular clusters research. It should provide the scientific community a modern tool for the standardized collection of data archives related to astronomical observations with modern instruments (from Earth and from sky), for data navigation and exploration.
- The whole application (being part of DAME) has been built upon the GRID infrastructure of S.Co.P.E. (Sistema Cooperativo per Esperimenti scientifici ad alte prestazioni) project. It consists of a computational grid “structure oriented”, realized and managed from the collaboration between Università Federico II and INFN section of Naples.

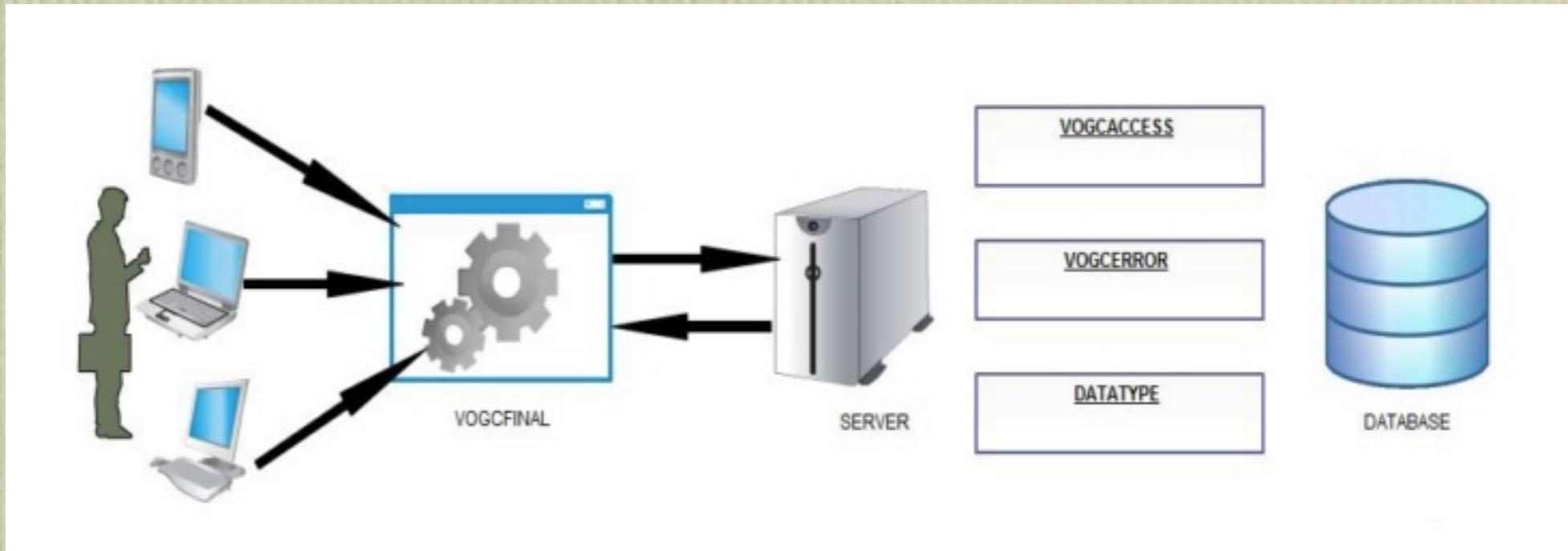
Inside *Vogclusters*



layers structure



Inside *Vogclusters* / 2



VOGCACCESS: the back-end level of the application. It belongs to the Data Access Layer;

VOGERROR: error handling

DATATYPE: it contains all info about type of data used by the application

SERVER: it collects and handle the requests by the users and elaborate data received from the database

VOGCFINAL: it is the part that interacts with the user. It contains all the classes concerning the GUI (Presentation Layer)

Documentation

Technical Support

F.A.Q.

Who is who

Research Issues

Intro to Globular Clusters

Web App Design

News:

The test session of the alpha release (before the public release) has started!

More news coming next...

Click below to access to the VOGCLUSTERS application

[GO](#)

The user documentation will be soon available on this page.

Check periodically for updates!

Resources:

[Newsletters](#)

[IVOA Interest Group on Knowledge Discovery in](#)

VOGCLUSTERS (alpha release)

Web Application for Globular Clusters Research



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This page is the entry point to the VOGCLUSTERS Web Application (alpha release) specialized for data and text mining on globular clusters. It is a toolset of DAME Program to manage and explore GC data in various formats.

In this page the users can obtain news, documentation and technical support about the web application.

Release Notes



Release currently available:

- The alpha 2 release available [here](#). This is the last version, running on a stable platform, deployed at the end of November 2011.
- The alpha 1 release available [here](#). This was the first official deployed version.
- The current releases are the first version of the web application, made available to a selected testing team, in order to evaluate first basic features and tools. If you are interested to become a tester for this resource, please contact the project board.

The goal of the project VOGCLUSTERS is the design and development of a web application specialized in the data and text mining activities for astronomical archives related to globular clusters. Main services are employed for the simple and quick navigation in the archives (uniformed under VO standards and constraints) and their manipulation to correlate and integrate internal scientific information. The project has not to be intended as a straightforward website for the globular clusters, but as a web application. A website usually refers to the front-end interface through which the public interact with your information online. Websites are typically informational in nature with a limited amount of advanced functionality. Simple websites consist primarily of static content where the data displayed is the same for every visitor and content changes are infrequent. More advanced websites may have management and interactive content. A web



Drawing of a full sphere

Leonardo da Vinci

De Divina Proportione, Luca Pacioli, Milan, 1497

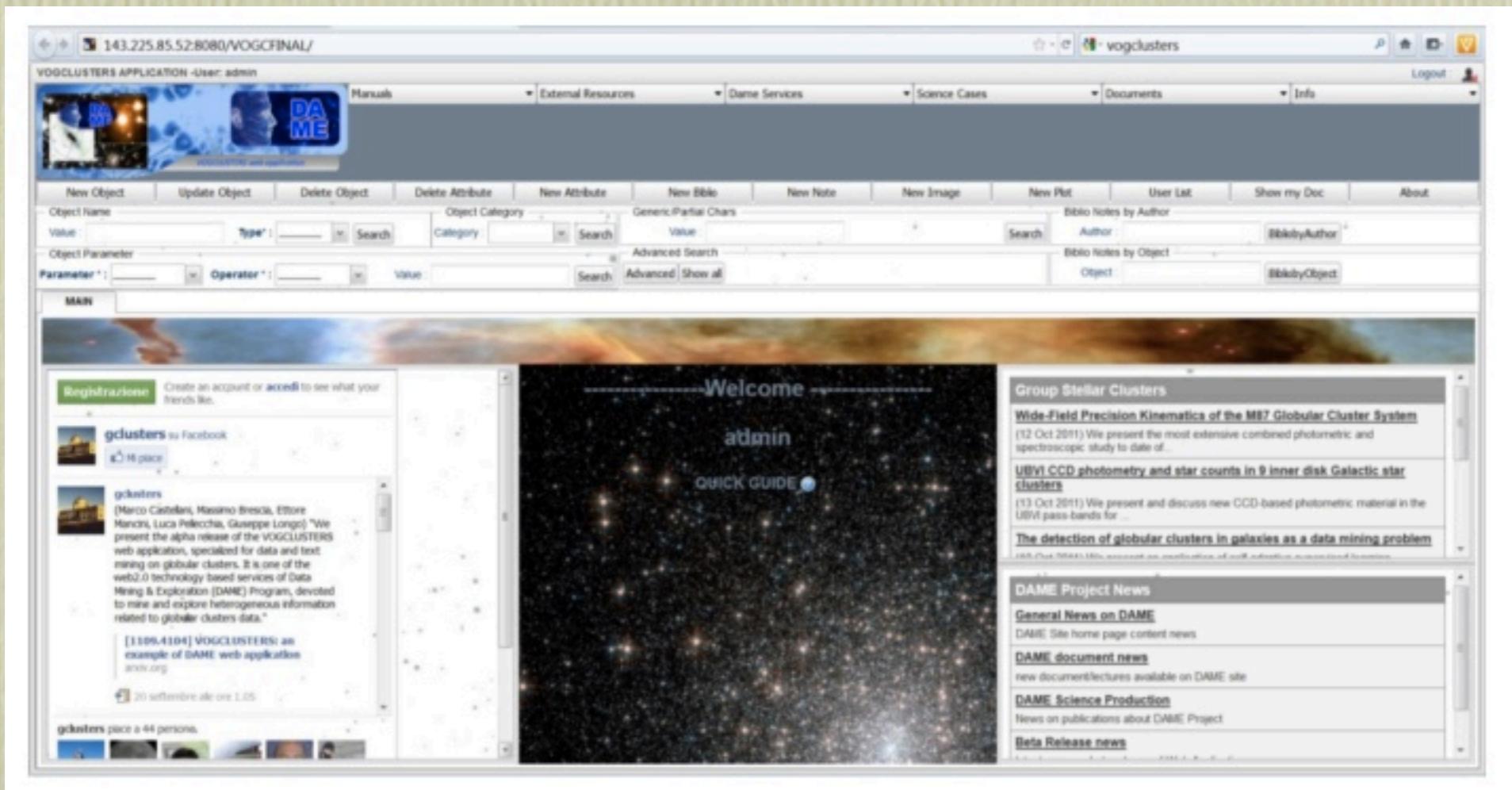
GC Resources

- [+] [Harris Catalogue](#)
- [+] [WEBDA Galactic GCs](#)
- [+] [Variable stars in GCs](#)
- [+] [dmoz Directory](#)
- [+] [SEDS Resource](#)
- [+] [Padova GC Group](#)
- [+] [GC Preprints](#)
- [+] [Galactic GC Database](#)
- [+] [GC Blog](#)
- [+] [GC on Facebook](#)
- [+] [GC DBase Reference](#)

DAME Science Cases

- [+] [Photometric redshifts](#)

VOGLUSTERS, the *entrance*...



Showing results after a query...

The screenshot shows a web-based application interface for managing astronomical objects. At the top, there is a navigation bar with links for 'New Object', 'Update Object', 'Delete Object', 'Delete Attribute', 'New Attribute', 'New Note', 'New Image', 'New Plot', 'User List', 'Show my Doc', and 'About'. Below the navigation bar, there are several search and filter fields: 'Object Name' (Value: 'ngc1851', Type: 'Cluster'), 'Object Category' (Category: 'Cluster'), 'Generic/Partial Chars' (Value: 'ngc1851'), 'Advanced Search' (Search button), 'Bibliography by Author' (Author: 'DA ME'), 'Bibliography by Object' (Object: 'ngc1851'), 'Object Parameters' (Parameter: 'ngc1851', Operator: '=', Value: 'ngc1851'), and 'Advanced Show all' (Search button). The main content area displays a table of properties for the object 'ngc1851'. The table has two columns: 'Property' and 'Value'. The properties listed include Right Ascension, Declination, Galactic Longitude, Galactic Latitude, Galactic Longitude, Galactic Latitude, Distance from the Sun (pc), Distance from Galactic center (pc), Distance component X (toward gal center) (pc), Distance component Y (in direction of gal rotation) (pc), Distance comp. Z (toward north gal pole) (pc), Right Ascension, Declination, Apparent visual distance modulus, Integrated V magnitude of the cluster, Absolute visual-magnitude (cluster luminosity), integrated color indices U-B (uncorrected for reddening), integrated color indices B-V (uncorrected for reddening), integrated color indices V-R (uncorrected for reddening), integrated color indices R-I (uncorrected for reddening), Metallicity - Fe/H (Zsun), Parallax Reddening, V Magnitude Level of the Horizontal Branch (or RR Lyrae), Integrated spectral type, ellipticity (projected axis ratio), heliocentric radial velocity (km/s), and observational (internal) uncertainty in radial velocity.

Property	Value
Right Ascension	09:40:56.76
Declination	-48:04:12
Galactic Longitude	244.91
Galactic Latitude	-35.04
Galactic Longitude	244.91
Galactic Latitude	-35.03
Distance from the Sun (pc)	12.1
Distance from Galactic center (pc)	16.6
Distance component X (toward gal center) (pc)	-4.2
Distance component Y (in direction of gal rotation) (pc)	0.9
Distance comp. Z (toward north gal pole) (pc)	-0.9
Right Ascension	09:40:56.76
Declination	-48:04:12
Apparent visual distance modulus	15.47
Integrated V magnitude of the cluster	7.14
Absolute visual-magnitude (cluster luminosity)	-6.33
integrated color indices U-B (uncorrected for reddening)	0.17
integrated color indices B-V (uncorrected for reddening)	0.76
integrated color indices V-R (uncorrected for reddening)	0.49
integrated color indices R-I (uncorrected for reddening)	1.01
Metallicity - Fe/H (Zsun)	-1.19
Parallax Reddening	0.82
V Magnitude Level of the Horizontal Branch (or RR Lyrae)	16.09
Integrated spectral type	F7
ellipticity (projected axis ratio)	0.05
heliocentric radial velocity (km/s)	528.5
observational (internal) uncertainty in radial velocity	0.6

Database(s)...

- * The set of data is composed by the *union* of information coming from *different archives* that are on the web
- * Data must be represented in *VO complaint format*
 - * Data are informations related to globular clusters (*magnitude, position, metallicity, distance, luminosity, tidal radius, variability, color-magnitude diagrams, sky maps, bibliographic items, etc...*)

DAME

DAME (DAta Mining & Exploration) is an innovative, general purpose, Web-based, distributed data mining infrastructure specialized in *Massive Data Sets exploration* with machine learning methods.

Initially fine tuned to deal with astronomical data only, DAME has evolved in a general purpose platform program, hosting a *cloud of applications and services* useful also in other domains of human endeavor.

DAME is an evolving platform and new services as well as additional features are continuously added. The modular architecture of DAME can also be exploited to build applications (such as VOGCLUSTERS), finely tuned to specific needs.

S.Co.P.E.

S.Co.P.E. (Università degli Studi di Napoli Federico II).

* general purpose supercomputing *

* GRID & distributed environment *



VOGCLUSTERS vs. VO

- Evolution toward a *full integration* with VO archives
- Make research *into* VO from VOGCLUSTERS
- *Ingeste* VO data into VOGCLUSTERS



Our goal:



Photo by V. Belmont, <http://www.flickr.com/photos/earlysound/4490601295/>

To make *real research*
taking advantage of a whole GRID
(and eventually of a whole *cat...*)

Links...

- <http://dame.dsf.unina.it/vogclusters.html>
- <http://www.facebook.com/gclusters>

Marco Castellani

INAF - Rome Astronomical Observatory

<http://mcastel.weebly.com>

http://www.researchgate.net/profile/Marco_Castellani/