The Virtual Observatory: Retrospective and Prospectus

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US NRC Decadal Survey, 2000

The NVO will provide a “virtual sky" based on the enormous data sets being created now and the even larger ones proposed for the future. It will enable a new mode of research for professional astronomers and will provide to the public an unparalleled opportunity for education and discovery.

Virtual Observatories of the Future (June 2000, Pasadena)

IVOA

Astro Grid
Aus-VO
VObs.it
China-VO
vo-i
CVO
RVO
NVO
NATIONAL VIRTUAL OBSERVATORY
IVOA
SVO
ArVO
EURO VO
JVO
HVO
Hungarian Virtual Observatory
GERMAN ASTROPHYSICAL
GAVO
VIRTUAL OBSERVATORY
France

IVOA Standards

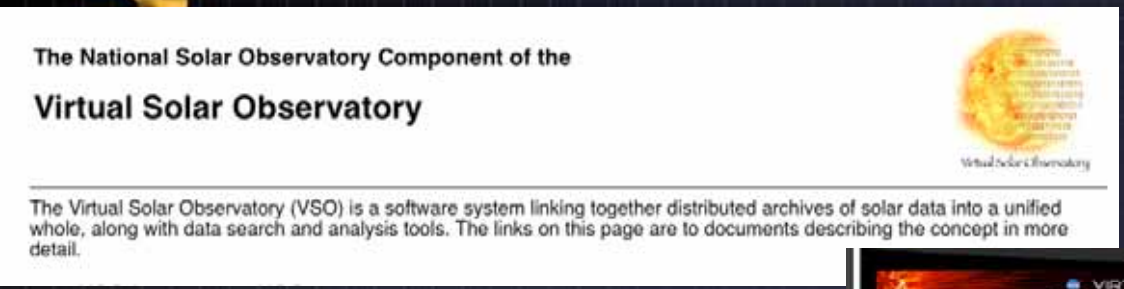
Category	Name	Status
Applications	Simple Application Messaging Protocol (SAMP)	REC
Data Access	Simple Cone Search (SCS)	REC
	Simple Image Access Protocol (SIAP)	PR
	Simple Line Access Protocol (SLAP)	PR
	Simple Spectrum Access Protocol (SSAP)	REC
	Table Access Protocol (TAP)	PR
Data Models	Space-Time Coordinates (STC)	REC
	Astronomical Dataset Characterization	REC
	Spectral Lines Data Model	PR
	Spectral Data Model	REC
Grid & Web Services	Single Sign-On/Authentication (SSO)	REC
	VOSpace	REC
	Credential Delegation Protocol	PR
	Universal Worker Service (UWS)	PR
	Support Interfaces	WD
	Web Service Basic Profile	WD
Registries	Identifiers	REC
	Registry Interface	PR
	Resource Metadata	REC
	VOResource	REC
	VODataService	PR
Semantics	Unified Content Descriptors (UCDs)	REC
	Maintenance of UCD Words	REC
	UCD1+ Controlled Vocabulary	REC
	Vocabularies in the Virtual Observatory	REC
VOEvent	Sky Event Reporting Metadata	REC
Query Language	Astronomical Data Query Language (ADQL)	REC
	SkyNode Interface	WD
VOTable	VOTable Format Specification	REC

Nature, 10 Sept 2009

Nature, 10 Sept 2009

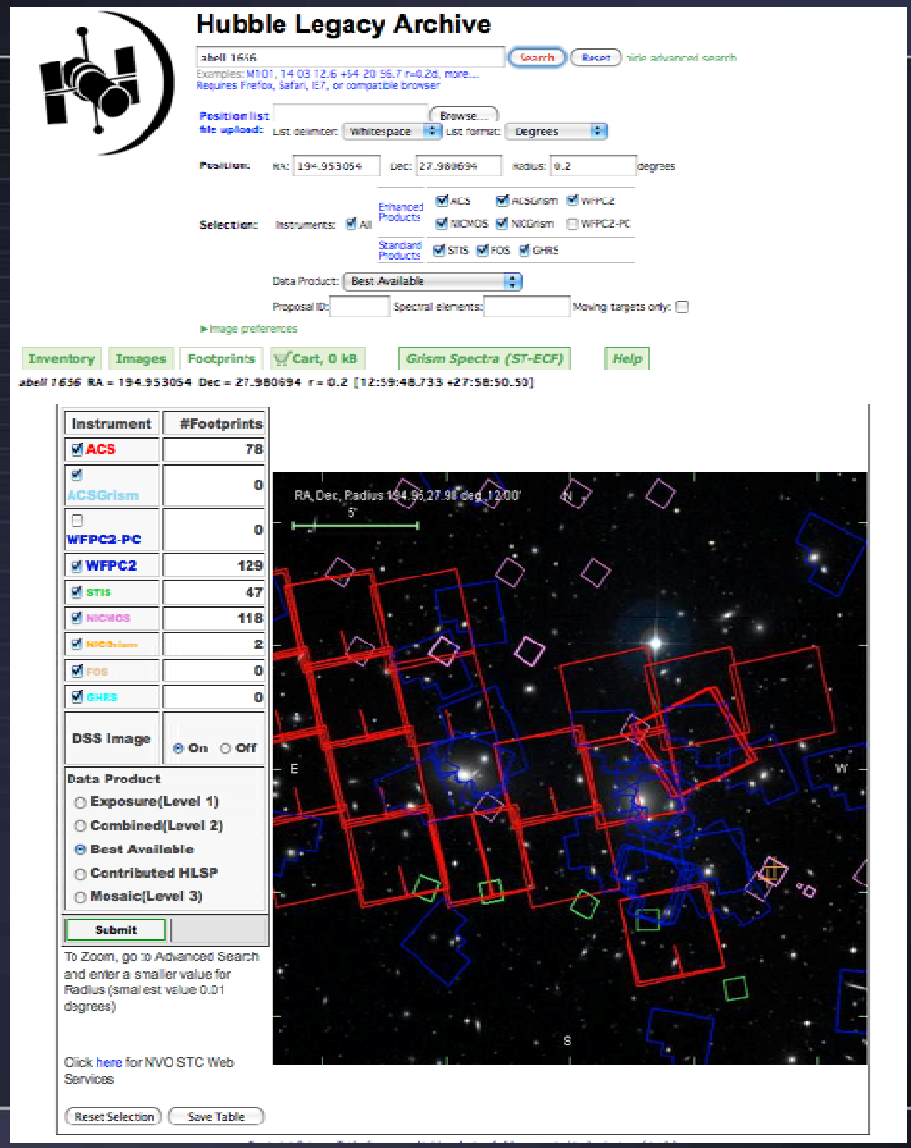
Some communities have been quite open to sharing, and their repositories are bulging with data. Physicists, mathematicians and computer scientists use http://arXiv.org, operated by Cornell University in Ithaca, New York; the International Council for Science's World Data System holds data for fields such as geophysics and biodiversity; and molecular biologists use the Protein Data Bank, GenBank and dozens of other sites. The astronomy community has the International Virtual Observatory Alliance, geoscientists and environmental researchers have Germany's Publishing Network for Geoscientific ¥& Environmental Data (PANGAEA), and the Dryad repository recently launched in North Carolina for ecology and evolution research.'' (Nelson 2009)

VOs in Other Sciences



VOs in Unexpected Places

Hubble Legacy Archive: VO Inside



Marketing

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NVO Website

Need help? Not sure how to start?
» Getting Started with NVO

Collect all data at a given position.
» DataScope

Count matches between catalog entries and given positions.
» Inventory

Query databases and cross-match object lists
» Open SkyQuery

Find data collections and catalogs by searching their descriptions.
» Directory

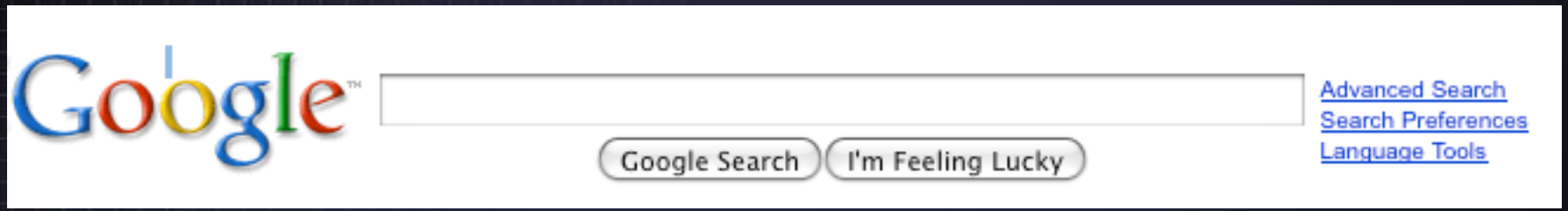
Integrate data from multiple positions and datasets.
» VIM

Query the VO from the command line.
» VO-CLI

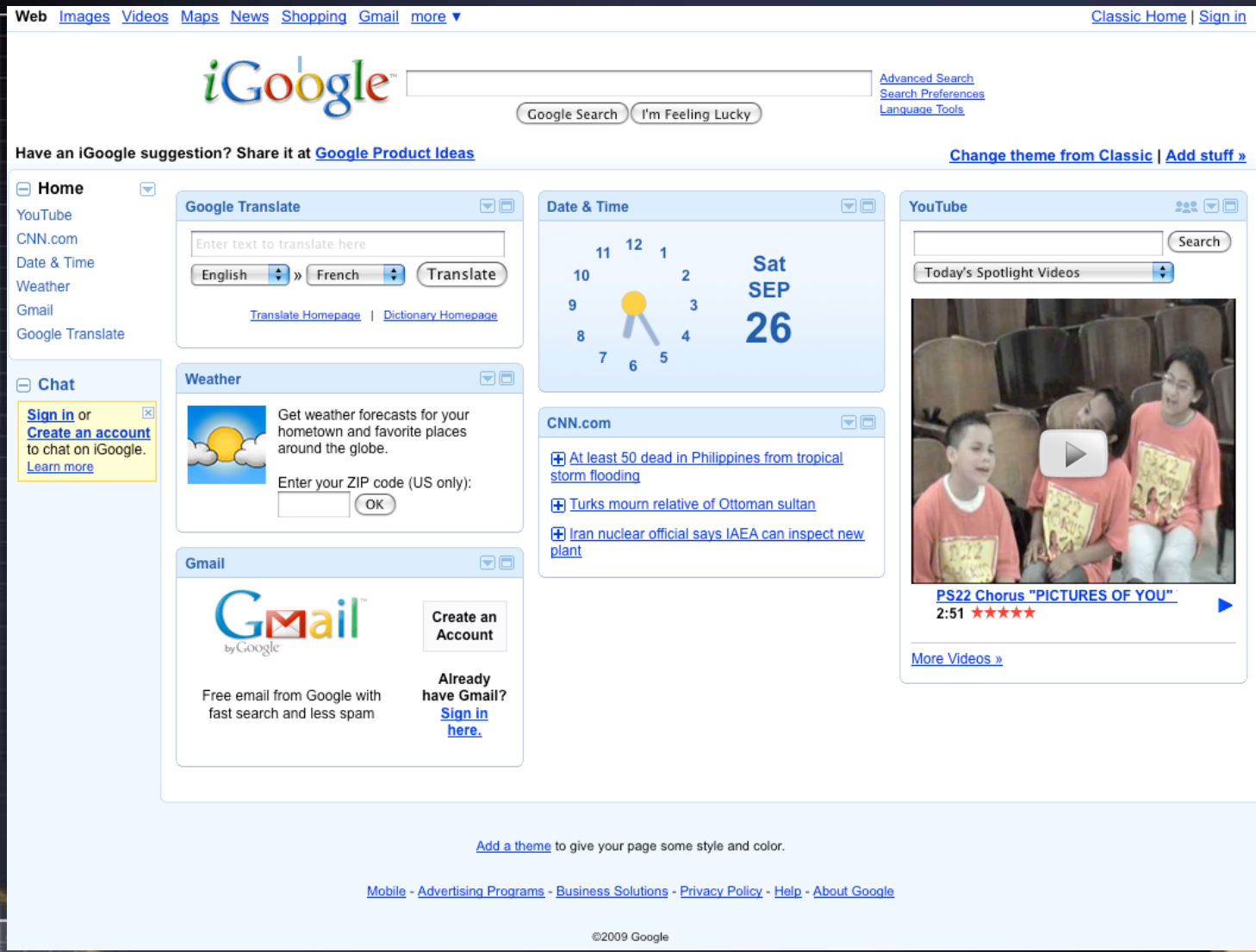
Convert text tables to the VOTable format used by VO applications.
» Table Tools

Do more with NVO.
» Data Analysis & More

Google, then...


Google
Google Search
I'm Feeling Lucky
Advanced Search
Search Preferences
Language Tools

Google, now...


Web Images Videos Maps News Shopping Gmail more ▼
Classic Home | Sign in
iGoogle
Google Search
I'm Feeling Lucky
Advanced Search
Search Preferences
Language Tools
Have an iGoogle suggestion? Share it at Google Product Ideas
Change theme from Classic | Add stuff »
Home
YouTube
CNN.com
Date & Time
Weather
Gmail
Google Translate
Chat
Sign in or Create an account to chat on iGoogle.
Learn more
Google Translate
Enter text to translate here
English » French
Translate
Translate Homepage | Dictionary Homepage
Weather
Get weather forecasts for your hometown and favorite places around the globe.
Enter your ZIP code (US only):
OK
Gmail
Gmail by Google
Free email from Google with fast search and less spam
Create an Account
Already have Gmail? Sign in here.
Date & Time
Sat
SEP
26
CNN.com
At least 50 dead in Philippines from tropical storm flooding
Turks mourn relative of Ottoman sultan
Iran nuclear official says IAEA can inspect new plant
YouTube
Search
Today's Spotlight Videos
PS22 Chorus "PICTURES OF YOU"
2:51
More Videos »
Add a theme to give your page some style and color.
Mobile - Advertising Programs - Business Solutions - Privacy Policy - Help - About Google
©2009 Google

VO Service Reliability Problems

National Virtual Observatory

NVO Portal: DataScope Response

NVO Home | New Query | Help | Contact Us

Hosted by: HEASARC NASA/GSFC

Data found(426) No data (5346) Errors(31) Waiting(0) 100% complete

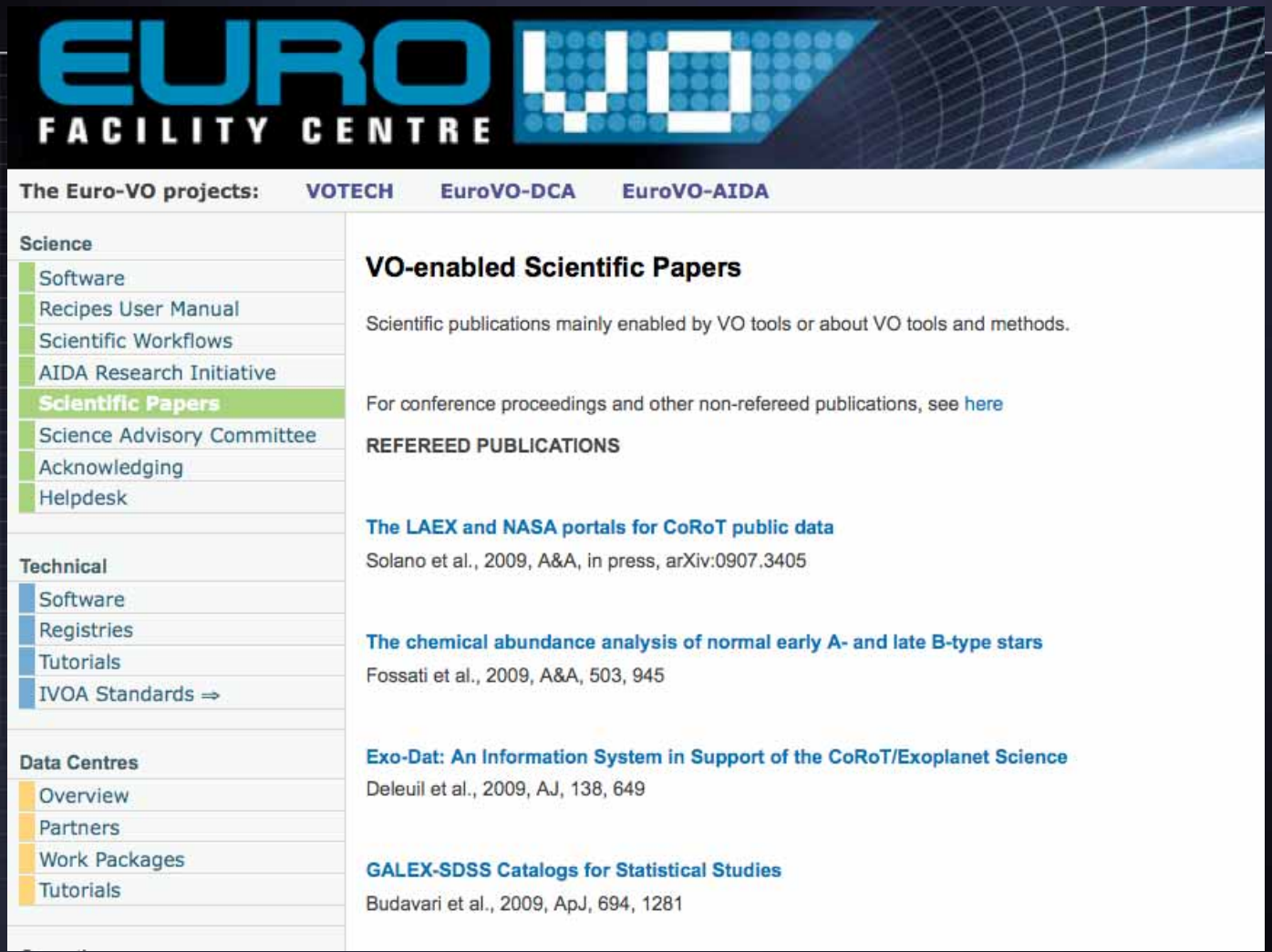
Position:MESSIER 045 Resources/hits: 5803/61670 Cache age:8.991 hours

Summary | Resources | Data Table | No Data | Still Processing | Errors | Help

Query errors

Short Name	Service Type Title Error	Publisher
2MASS-PSC	Objects/Infrared Astronomy, Surveys 2MASS All-Sky Point Source Catalog java.net.SocketTimeoutException: Read timed out	NASA/IPAC Infrared Science Archive
ADIL	Observations/Radio, Millimeter, Infrared, Optical, UV NCSA Astronomy Digital Image Library Cone Search (Targeted Images) java.net.ConnectException: Connection timed out	NCSA Radio Astronomy Imaging
ADIL	Images/Radio, Millimeter, Infrared, Optical, UV NCSA Astronomy Digital Image Library Simple Image Access java.net.ConnectException: Connection timed out	NCSA Radio Astronomy Imaging
Aladin	Images/Optical, Infrared The ALADIN image server org.xml.sax.SAXParseException: Content is not allowed in prolog.	CDS
CADC/HSTCA	Images/Optical, UV CADC/HSTCA SIA service java.io.FileNotFoundException: http://www.cadc-ccda.hia-iha.nrc-cnrc.gc.ca/ivoa/HSTCA/siapQuery?POS=56.85,24.116667&SIZE=0.25&requestID=DS1254116231548	Canadian Astronomy Data Centre
DSS1	Images/Optical Digitized Sky Survey 1 java.io.FileNotFoundException: http://nvo-twiki.stsci.edu/gscvo/DSS1.jsp?FORMAT=image/fits&&POS=56.85,24.116667&SIZE=0.2505&requestID=DS1254116231548	Space Telescope Science

VO-Enabled Research Papers



and 30 more...

The VO is:

Technology enabled…

science driven.