



NRC-CNRC

*Herzberg Institute
of Astrophysics*

Virtual Observatory Activities in Canada

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National Research
Council Canada

Conseil national
de recherches Canada

Canada



Canadian Virtual Observatory

- A project of CADC
- Goals
 - Publish data from collections
 - Contribute to IVOA development
 - Deploy services for the community
- Funding
 - Long-Range Plan for Astronomy in Canada
 - Canadian Space Agency
 - Herzberg Institute for Astrophysics
 - CANARIE

A screenshot of the Canadian Astronomy Data Centre (CADC) website. The browser address bar shows "http://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/cadc/". The page title is "The Canadian Astronomy Data Centre". Below the title, there is a search bar and a "Go" button. The main content area is a grid of icons representing various astronomical services and facilities, including "Advanced Query Service", "Astronomy Meetings", "CFHT Legacy Survey", "MEGA PIPE", "Canadian Virtual Observatory Services", "Community Projects", "Hubble Legacy Archive", "Programmatic Archive Access", "Solar System Object Search", "BLAST", "CFHT", "CGPS", "FUUSE", "Gemini", "HST", "JCMT", "MACHO", "MOST", "AstroCat", "Digitized Sky Survey", "Guide Stars", "U.S. Naval Observatory A2 Catalog", and "VizieR". The footer contains the NRC-CNRC logo and the CSA ASC logo.



Operations in 2009

- SIA queries
 - 326,675 queries
 - 2,259 distinct IP addresses
- SIA file retrievals
 - 115,900 files delivered
 - 1,194 distinct IP addresses
 - 12% of all public files delivered by CADC

VOTable Viewer
 http://nvo.stsci.edu/vor10/index.aspx#Table?filterText=

NVO National Virtual Observatory
 NVO Directory
 NVO Home Search Publish Developers Help Contact Us
 Hosted By Space Telescope Science Institute

Find Astronomical Data Resources

Enter terms in the text box that describe the type of data you are looking for. Results will show catalogs and data collections that have these terms as part of their descriptions.

cadc

Search Reset Advanced
 Examples: quasar, AGN, binary stars, Chandra, GALEX, far ultraviolet

Use [DataScope](#) to search and view data for a particular object or position.
 Use the [Inventory](#) to find catalogs having entries for a given position or list of positions.

cadc

Save All Results as CSV Save Next, Send Results to Send

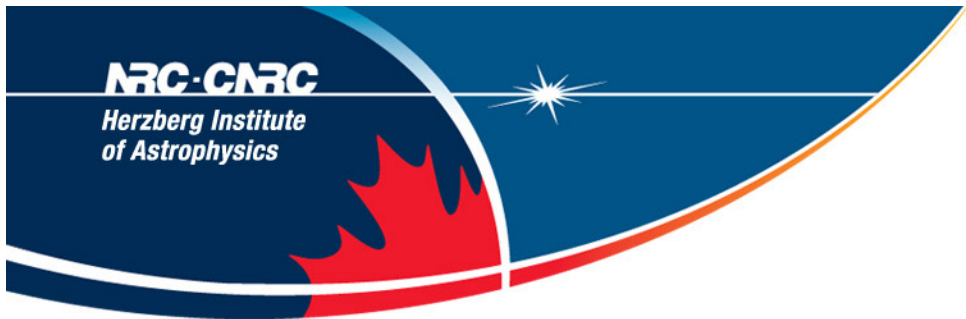
Results 1-4 of 4 (37 before filtering) Show 20 results per page

Click column heading to sort list - Click checkbox to select [Reset selection](#)

Text boxes under columns select matching rows [Apply Filter](#) [Clear Filter](#)

select	browse / query	categories	shortName	title
		Images	CADC	
<input type="checkbox"/>	Full Record More Info Search Me	Images	CADC/HST	CADC/HST Image Search
<input type="checkbox"/>	Full Record More Info Search Me	Images	CADC	CADC Image Search
<input type="checkbox"/>	Full Record More Info Search Me	Images	CADC/JCMT	CADC/JCMT Image Search
<input type="checkbox"/>	Full Record More Info Search Me	Images	CADC/CFHT	CADC/CFHT Image Search

Go to "http://irsa.ipac.caltech.edu/cgi-bin/VOInventory/nph-volInventory"



Collections today

Collection	SIA ¹	ObsCore ²	CAOM ³
BLAST		37	104
CFHT	120,283	368,148	445,116
GEMINI		51,257	51,257
HST	505,459	1,192,556	2,515,204
IRIS		430	430
JCMT	4,133	747,881	811,381
MACHO	2,024	120,803	120,803
Total	631,899	2,481,112	3,944,295

¹Calibrated image data

²Raw and calibrated data

³Raw, calibrated and auxiliary data

Collections to be done:
HLA, CFHT ESPaDOnS, Gemini,
CGPS



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Table Access Protocol

- Released a production TAP service with UWS
- Queries:
 - The Common Archive Observation Model (CAOM)
 - The (evolving) ObsCore prototype table
 - An Annotation service for CANFAR
- Used in:
 - A new implementation of SIA services
 - A new implementation of CADC Search interfaces

<http://www.cadc.hia.nrc.gc.ca/caom/>



opencadc

Open Source Software from the Canadian Astronomy Data Centre

- [Project Home](#)
- [Downloads](#)
- [Wiki](#)
- [Issues](#)
- [Source](#)

- [Checkout](#)
- [Browse](#)
- [Changes](#)

Source path: svn/

[r536](#) [r537](#)

Directories	Filename	Size	Rev	Date	Author
▼svn	COPYING	33.7 KB	r23	Sep 03, 2009	pdowler.cadc
branches	Dependencies.txt	764 bytes	r144	Oct 21, 2009	chapelbcadc
tags	build.xml	5.1 KB	r247	Nov 26, 2009	jburke.cadc
▼trunk					
etc					
▼projects					
▶ cadcDownloadManager					
▶ cadcGMS					
▶ cadcLog					
▶ cadcSampleGMS					
▶ cadcSampleUWS					
▶ cadcTAP					
▶ cadcTestTAP					
▼ cadcTestUWS					
config					
▶ src					
test					
▶ cadcTestVOS					
▶ cadcUWS					
▶ cadcUtil					
▶ cadcVOS					
▶ cadcVOSI					



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CANFAR

- Canadian Advanced Network for Astronomical Research
- Enable leading-edge scientific discovery
- Turning Grid resources into a Cloud for astronomy
 - Deliver a network-enabled platform for the delivery, processing, storage, analysis and distribution of large astronomical datasets
- Support the changing sociology of science
 - Survey/project teams
- 2½ year project; 24.5 FTE
- 6 survey projects
- IVOA technologies core to the design



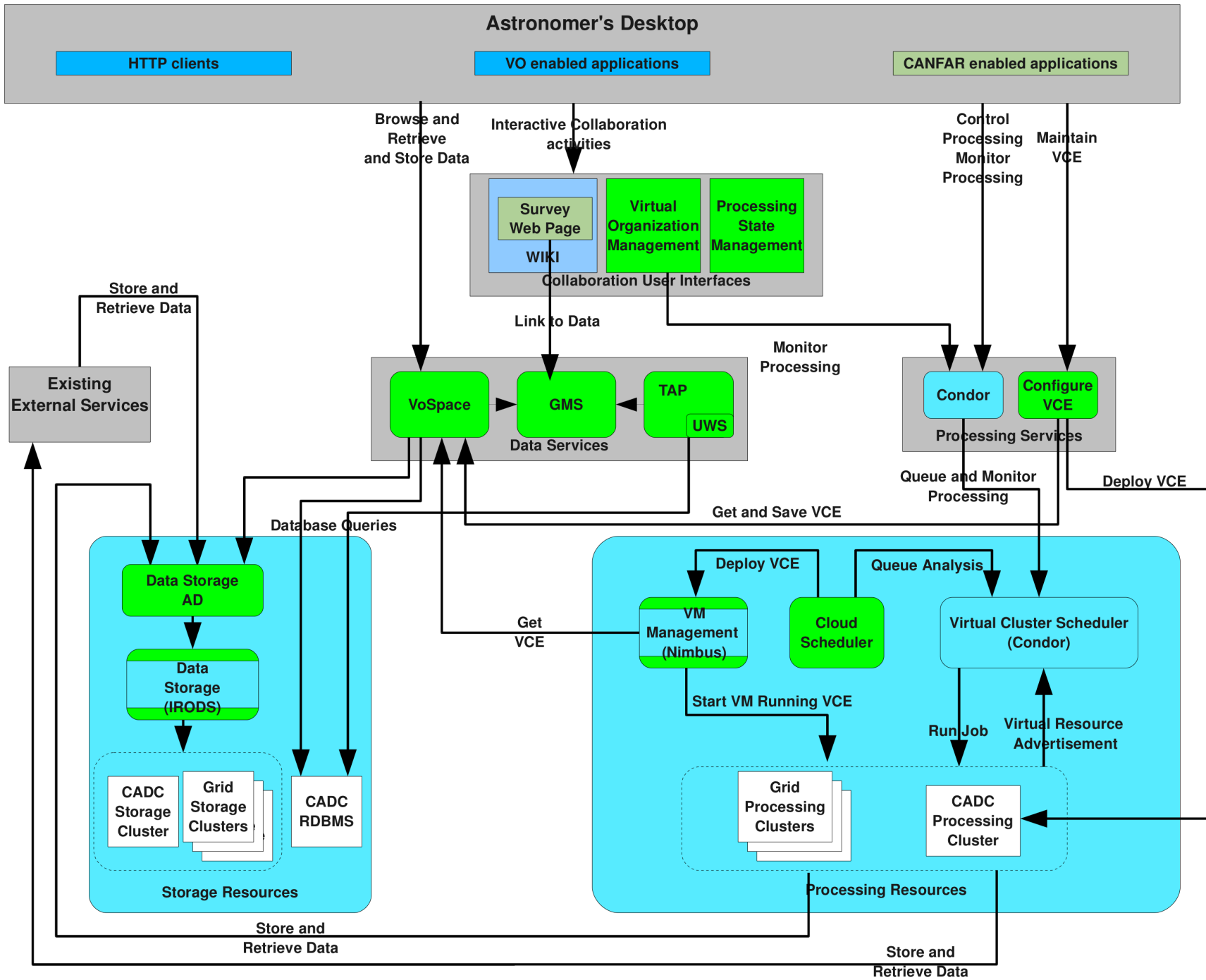
University
of Victoria



University of
British Columbia



CANARIE
Canada's Advanced Network  Le réseau évolué du Canada





CANFAR activities

- Implemented IVOA Single Sign On across all CADC web applications and services:
 - X.509 certificates
 - Access proprietary data or other restricted resources.
- Prototyped a Group Membership Service (GMS)
 - GWS 1: today 14.00-15.30
- Developing VOSpace 2.0
 - GWS 1: today 14.00–15.30
- Developing multi-cluster cloud scheduler
 - GWS 2: Thursday 11.00–12.30



New approach

- New perspective on VO standards
 - VO has moved from periphery to core
 - Re-using the intellectual investment of the IVOA
- Applying to new CADC use cases:
 - Annotation service: TAP, GMS, SSO
 - PI distribution: VOSpace, GMS, SSO
 - Collaboration repositories: VOSpace, GMS, SSO
 - Virtual machine repositories: VOSpace, GMS, SSO
 - Sharing virtual machines: VOSpace, GMS, SSO

