VAMDC

Breaking **N**ews

http://www.vamdc.eu (.org)

Carlo Maria Zwölf, Nicolas Moreau, Yaye Awa Ba,
Marie-Lise Dubernet, *on behalf of VAMDC consortium*.

Partners

FRANCE

Observatoire de Paris
Université de Bordeaux
Université Paul Sabatier (Toulouse)
Université de Bourgogne (Dijon)
Université de Champagne-Ardenne (Reims)
Université Joseph Fourier (Grenoble)

EUROPE

University of Cambridge (UK)
University College London (UK)
Uppsala Universitet (Sweden)
Open University (UK)
Universitaet Wien (Austria)
Universitaet zu Koeln (Germany)
Istituto Nazionale di Astrofisica (Italy)
Queen's University Belfast (UK)
Atomic and Molecular Data Unit (IAEA, Austria)
Astronomska Opservatorija (Serbia)

University of South Africa, South Africa

RUSSIA

Institute of Spectroscopy RAS
Institute of Atmospheric Optics
Institute for Astronomy RAS
Russian Federal Nuclear Center- All-Russian Institute of Technical Physics

South America

Corporacion Parque tecnologico de Merida (IVIC)
Universidade Federal do Paraná (Brazil)

ASIA-PACIFIC

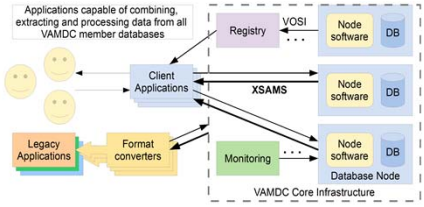
Korea Atomic Energy Reserch Institute, South Korea
Australian National University
Flinders University (Australia)
National Institute for Fusion Science (Japan)

USA

NIST
The Harvard-Smithsonian Center for Astrophysics
Jet Propulsion Laboratory from NASA, CALTECH

How is VAMDC technically organised ?

- VAMDC may be seen as a *grid* architecture for sharing and distribute *cloud* data **(from 27 databases)**



- Communications (data serializations) are based on a set of standards (www.vamdc.eu/standards)
  - Data exchange Protocols, Data Description
  - Standard vocabulary for all exchanges, including for registration of resources
- A set of software (www.vamdc.eu/software)
  - Node Software for implementation of databases within VAMDC
  - JAVA Librairies for the same purpose and to be used in user applications in order to access our databases and to handle the data
  - Software to check the outputs of databases within VAMDC
  - User software for the interstellar medium (will be extended) → SPECTCOL
  - Software Modules in different languages aimed at accessing infrastructure
- Monitoring of services (observatoire de paris)

What can we currently do with VAMDC?

Virtual Atomic and Molecular Data Centre

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Portal Evolution

Virtual Atomic and Molecular Data Centre

Dozen of conferences and tutorials were made

- tutorial.vamdc.eu
- (list at http://voparis-twiki.obspm.fr/twiki/bin/view/VAMDC/ScientificWorkshopsTutorials)

- **Collected feedbacks**
  → Portal is hard to use for inexperienced users.
  → It may exist ambiguity between user comprehension and portal actions.

- We redesigned the portal focusing on user experience (especially beginners)
  - No ambiguity about the actions to perform and the generated request.
  - Few a priori knowledge needed.

- Let us point out some of the introduced modification →

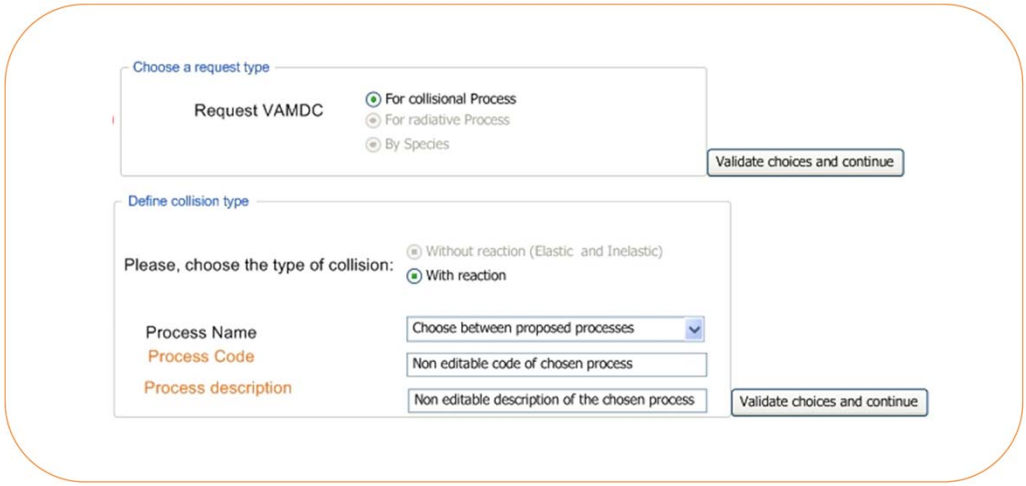
The portal (Before, ex for collisions)

Virtual Atomic and Molecular Data Centre

The current portal query interface

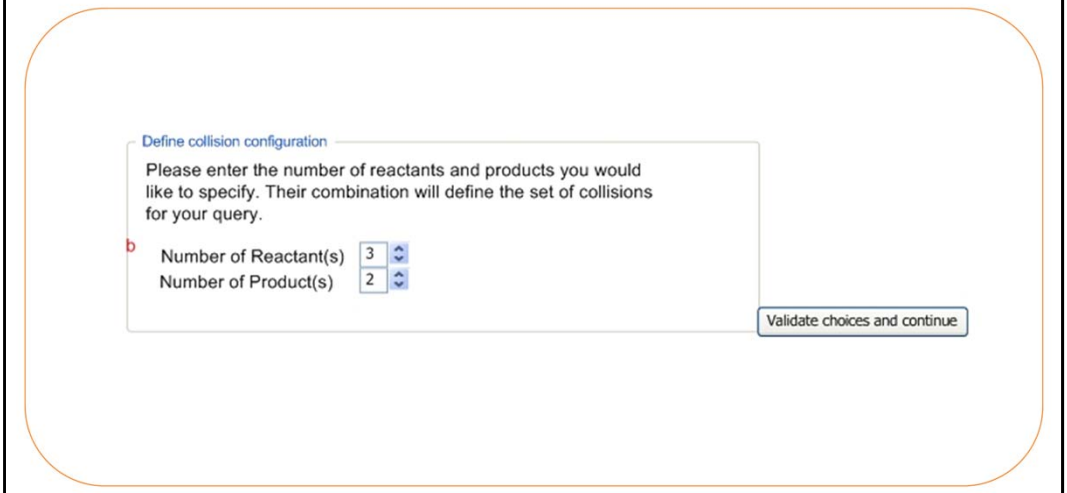
The redesigned portal (ex for collisions)

Virtual Atomic and Molecular Data Centre



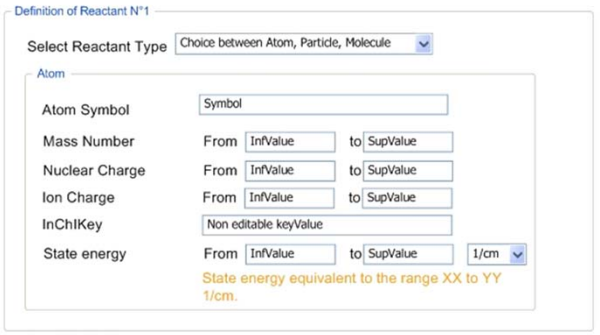
The redesigned portal (ex for collisions)

Virtual Atomic and Molecular Data Centre



The redesigned portal (ex for collisions)

Virtual Atomic and Molecular Data Centre



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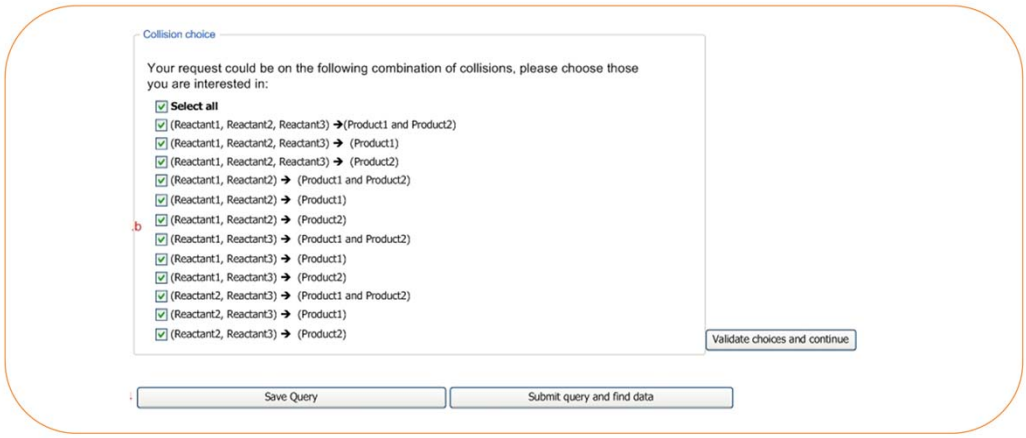

Before implementation → Youtube Demo (on the vamdc channel) for getting community advices and feedback (http://www.youtube.com/channel/UCg66E2aJbNzQraBVVh3D4Yw)

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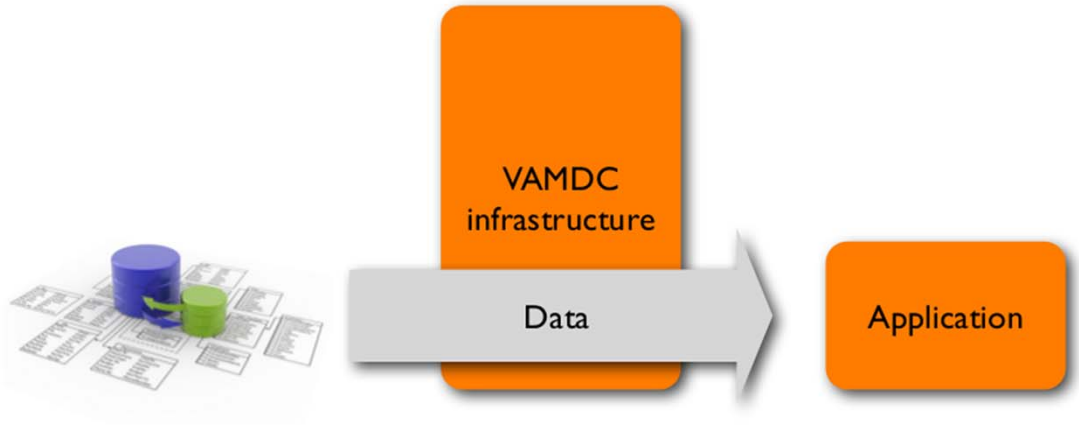
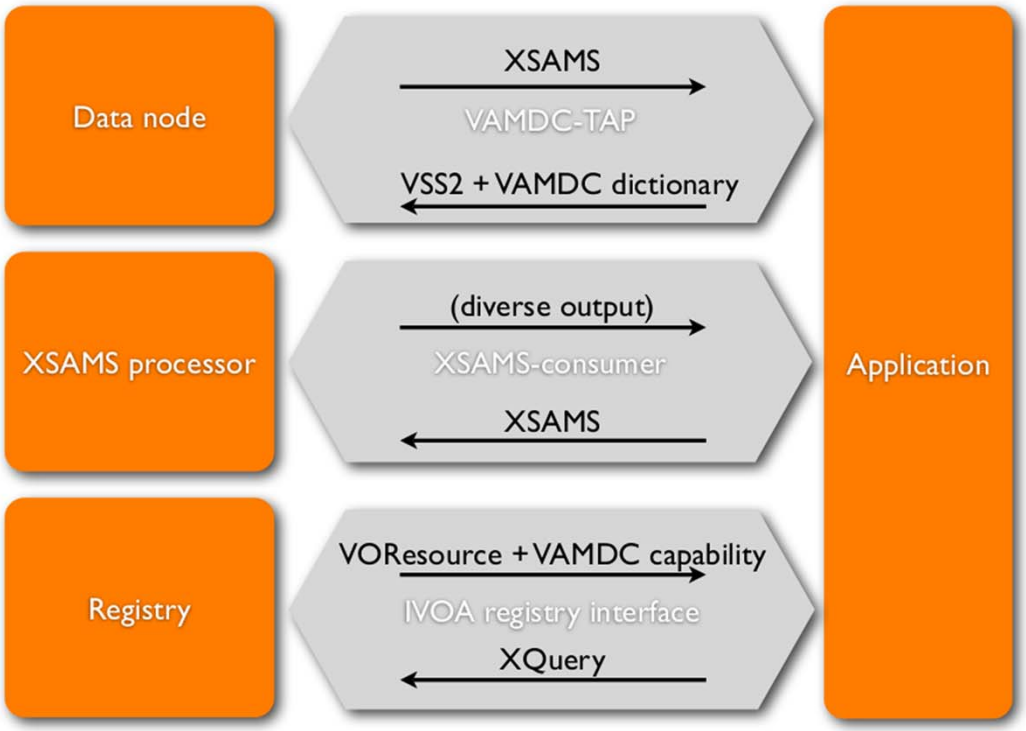
Le rôle de l'infrastructure



- L'infrastructure VAMDC est une couche intermédiaire entre les bases de données et les applications
- VAMDC ne fournit ni ne modifie ces bases ou ces applications
- L'infrastructure impose un ensemble de standards afin de rendre le tout intéropérable

Les standards VAMDC



Les processors

- Objectif : simplifier l'utilisation de fichier XSAMS par une transformation en des formats reconnus par des applications existantes

- Possibilité de conversion en CSV, XML (VOTable), HTML,…

- Ils sont accessibles depuis le portail sous forme de services webs

- Services standardisés : http://www.vamdc.org/documents/xsams-processor_v12.07.pdf

Les processors

- Un processor peut prendre de 1 à n fichiers en entrée

- Il va effectuer diverses actions :
  - conversion de format
  - fusion de fichiers

- Utilisation de XSLT pour les transformations

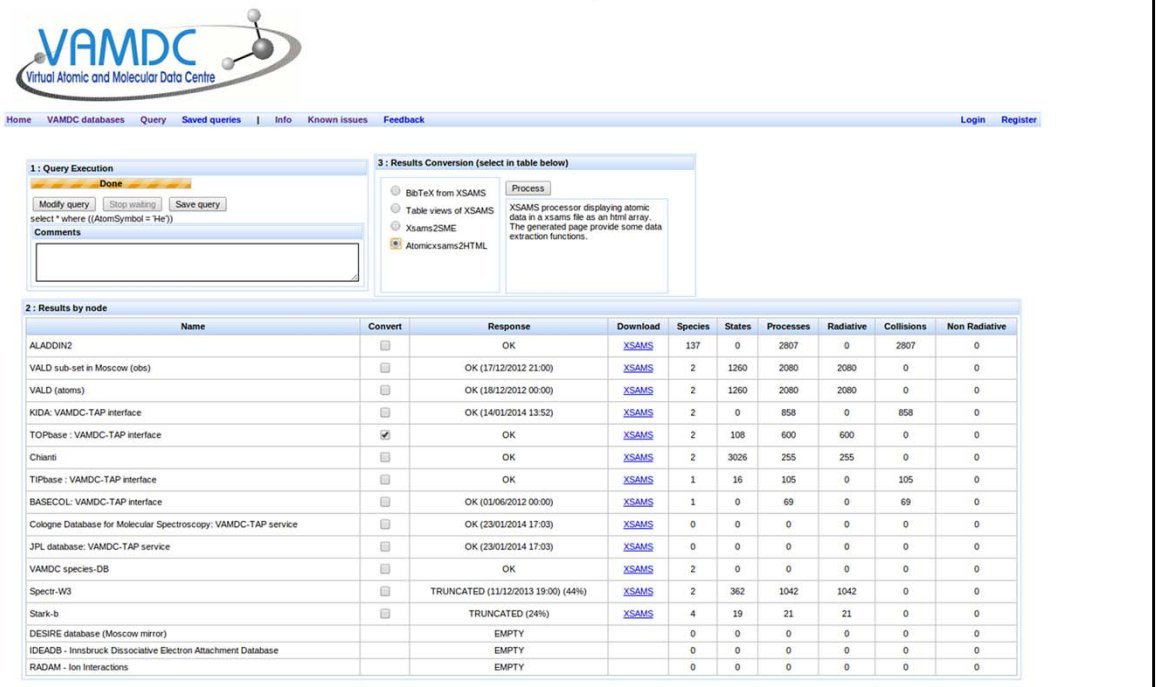
- Pour les futurs services :
  - un template de service est disponible, avec la gestion des entrées et des sorties et une interface web d'interrogation
  - seul le XSL est à modifier

- Les différentes communautés d'utilisateurs peuvent développer leurs services dédiés : VAMDC les inclura dans ses registries et son portail.

Les processors

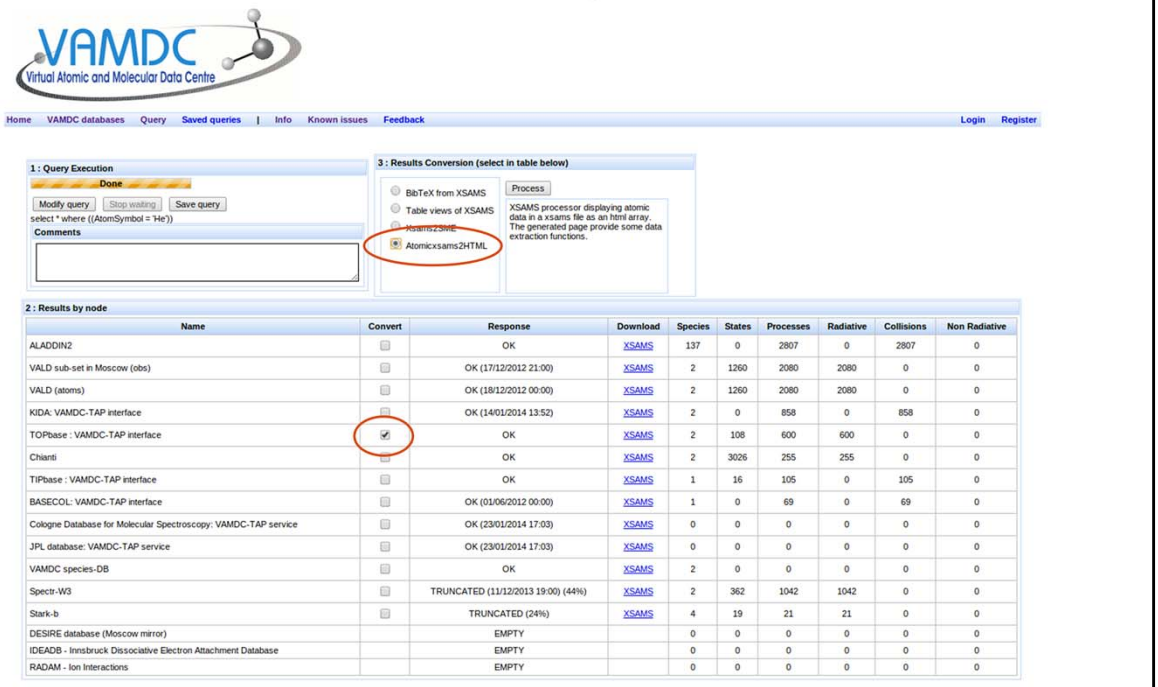
- 4 processors sont disponibles :
  - Bibtex : crée un fichier bibtex à partir des des références
  - Tableview : Crée un tableau HTML avec les données
  - Xsams to SME : Crée un fichier au format SME (Spectroscopy Made Easy, http://www.stsci.edu/~valenti/sme.html)
  - Xsams Atomic data to HTML : Crée une page HTML avec des fonctionnalités de conversion et SAMP

Accès via le portail



Name	Convert	Response	Download	Species	States	Processes	Radiative	Collisions	Non Radiative
ALADDIN2	☐	OK	XSAMS	137	0	2807	0	2807	0
VALD sub-set in Moscow (obs)	☐	OK (17/12/2012 21:00)	XSAMS	2	1260	2080	2080	0	0
VALD (atoms)	☐	OK (18/12/2012 00:00)	XSAMS	2	1260	2080	2080	0	0
KIDA: VAMDC-TAP interface	☐	OK (14/01/2014 13:52)	XSAMS	2	0	858	0	858	0
TOPbase : VAMDC-TAP interface	☑	OK	XSAMS	2	108	600	600	0	0
Chianti	☐	OK	XSAMS	2	3026	255	255	0	0
TIPbase : VAMDC-TAP interface	☐	OK	XSAMS	1	16	105	0	105	0
BASECOL: VAMDC-TAP interface	☐	OK (01/06/2012 00:00)	XSAMS	1	0	69	0	69	0
Cologne Database for Molecular Spectroscopy: VAMDC-TAP service	☐	OK (23/01/2014 17:03)	XSAMS	0	0	0	0	0	0
JPL database: VAMDC-TAP service	☐	OK (23/01/2014 17:03)	XSAMS	0	0	0	0	0	0
VAMDC species-DB	☐	OK	XSAMS	2	0	0	0	0	0
Spectr-W3	☐	TRUNCATED (11/12/2013 19:00) (44%)	XSAMS	2	362	1042	1042	0	0
Stark-b	☐	TRUNCATED (24%)	XSAMS	4	19	21	21	0	0
DESIRE database (Moscow mirror)		EMPTY		0	0	0	0	0	0
IDEADB - Innsbruck Dissociative Electron Attachment Database		EMPTY		0	0	0	0	0	0
RADAM - Ion Interactions		EMPTY		0	0	0	0	0	0

Accès via le portail



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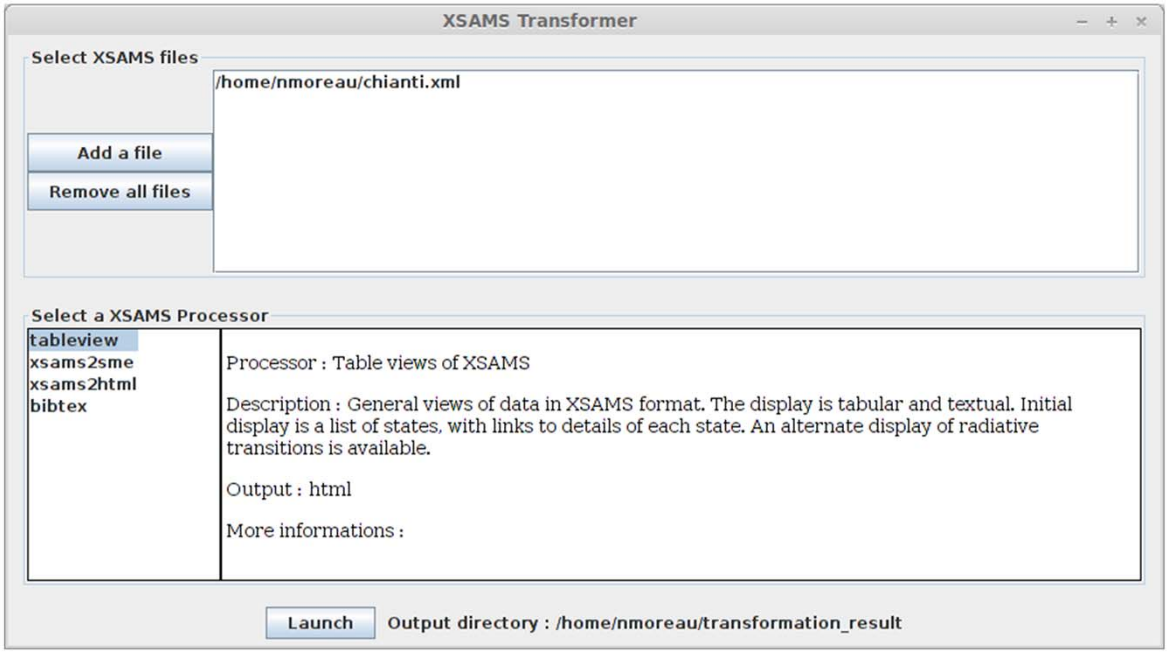
Accès via une application Java



Exemple de conversions

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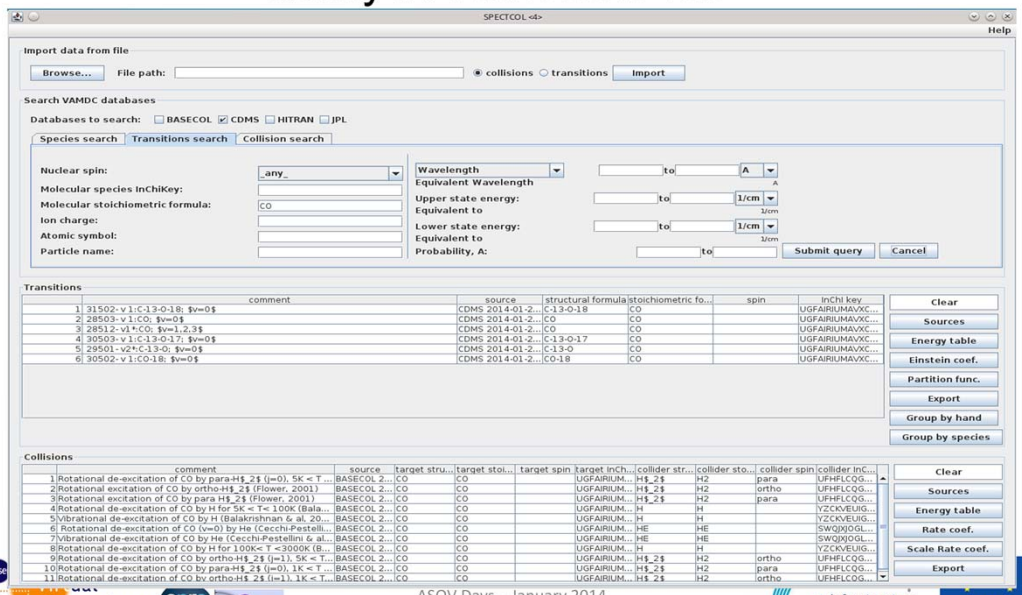
Spectcol

GUI Tool to Query/Manipulate Spectroscopic and Collisional Data
(Download : http://www.vamdc.eu/software)

- Handles VAMDC-XSAMS files from different databases
- Merging of spectroscopic and collisional data
- Display spectroscopic and collisional data: Species, Energy Tables, Frequencies, Einstein Coefficient, Partition function, sources, Rate Coefficients

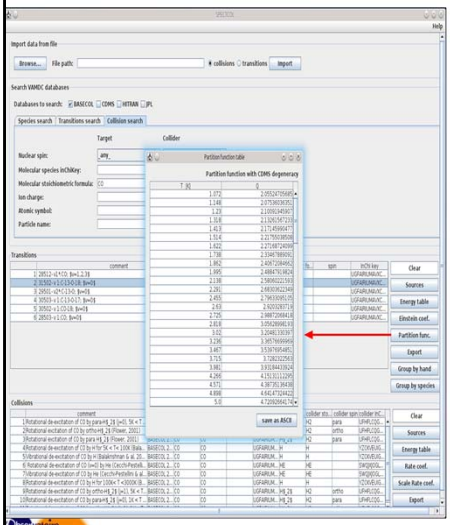
Spectcol : The Main Panel with Complex Query in Transition Tab

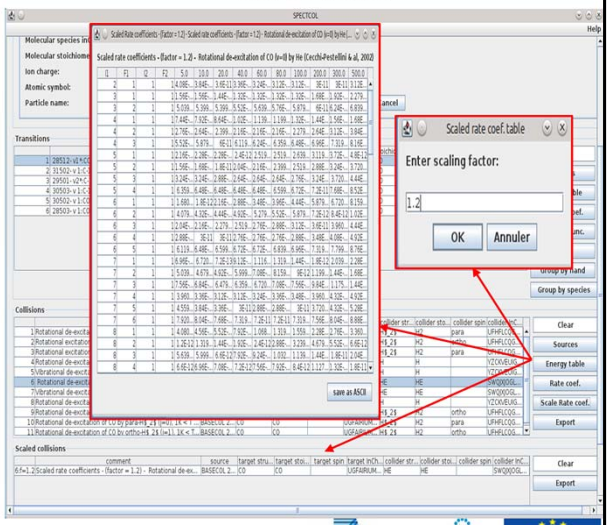


Spectcol with new displays

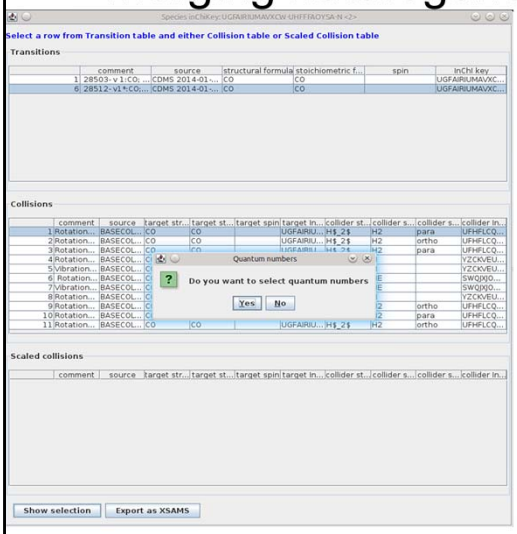
Dispaly of partition function Table

Display of scaled Rate coefficients and Collision



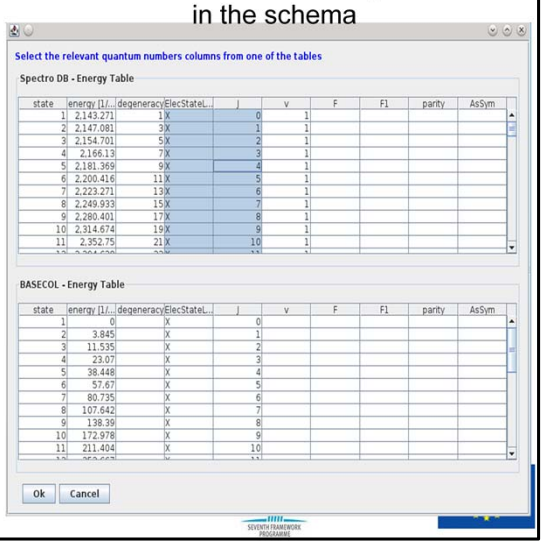


Merging heterogeneous data (implies selection of QN)

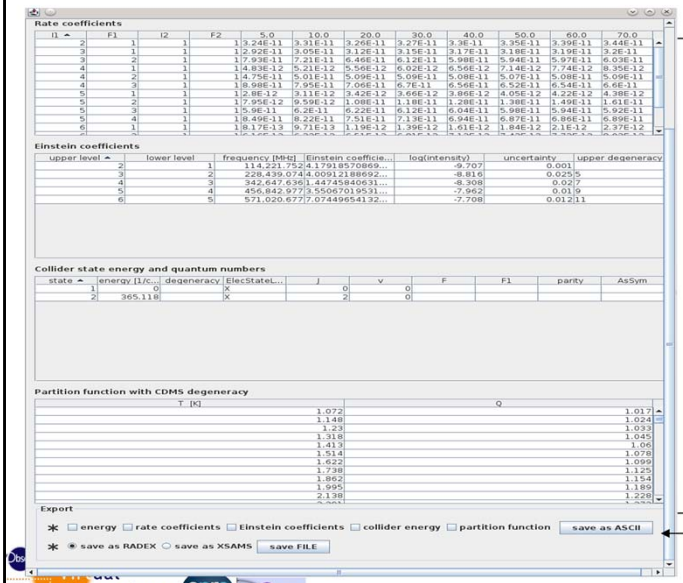


The merging is based on and possible because of **XSAMS**

Select QNs to keep in the schema



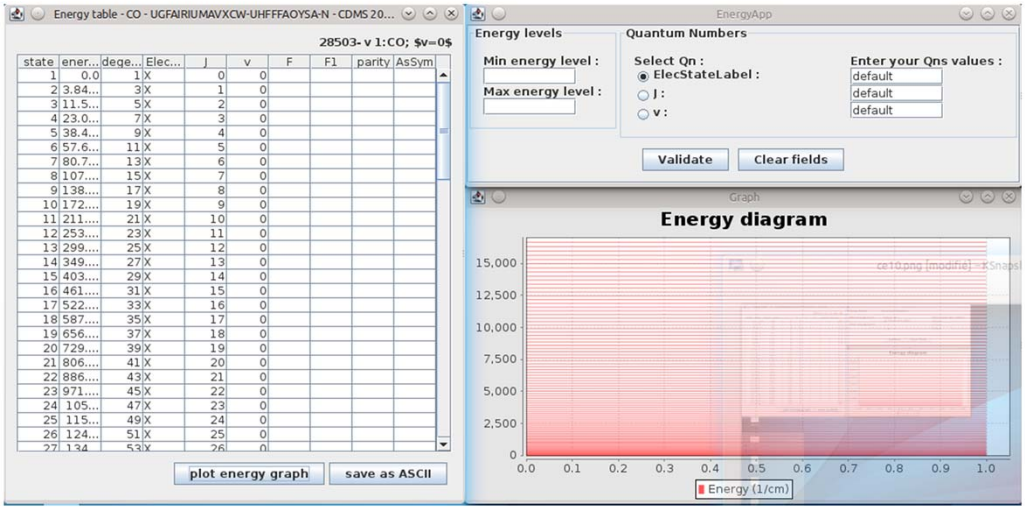
Spectcol with New Output Formats



Combination of Spectroscopic and collisional Data

Output format

Spectcol for Education



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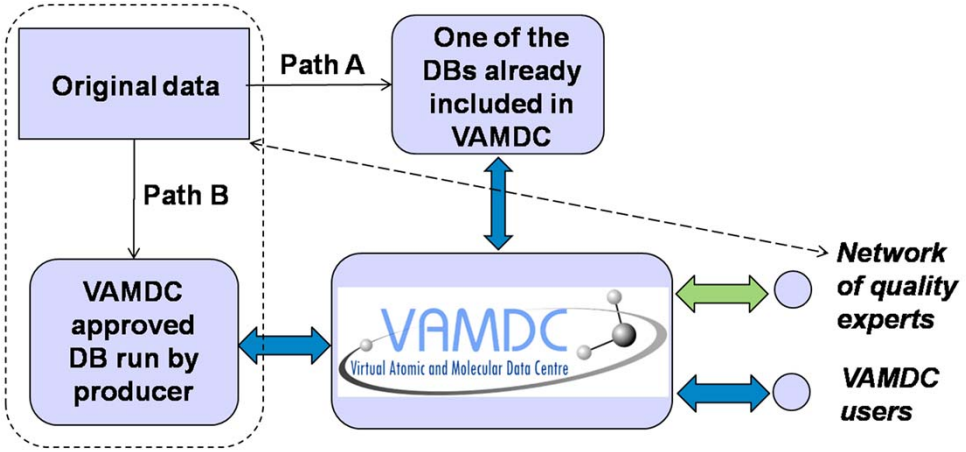
Include your data within VAMDC



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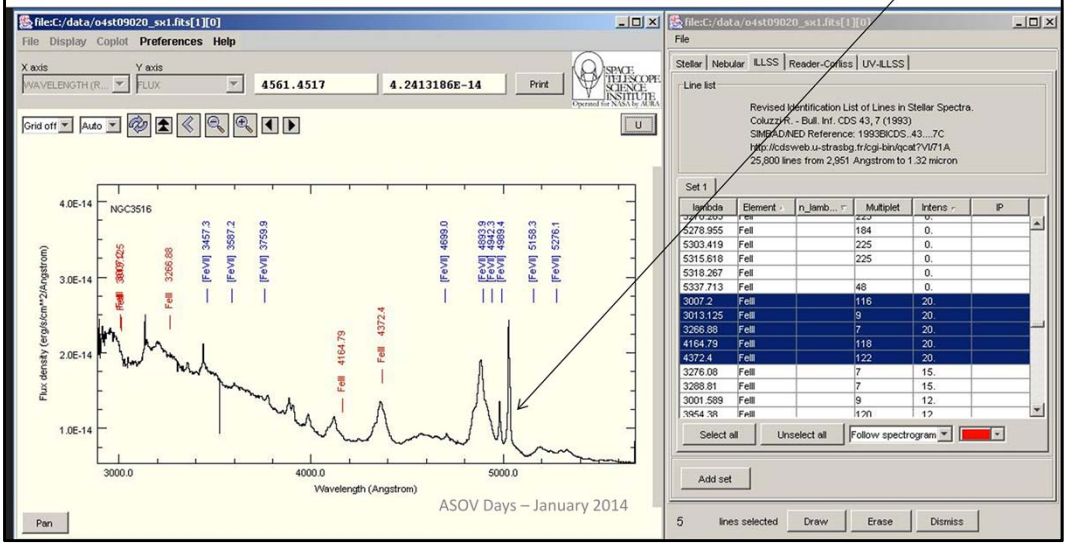
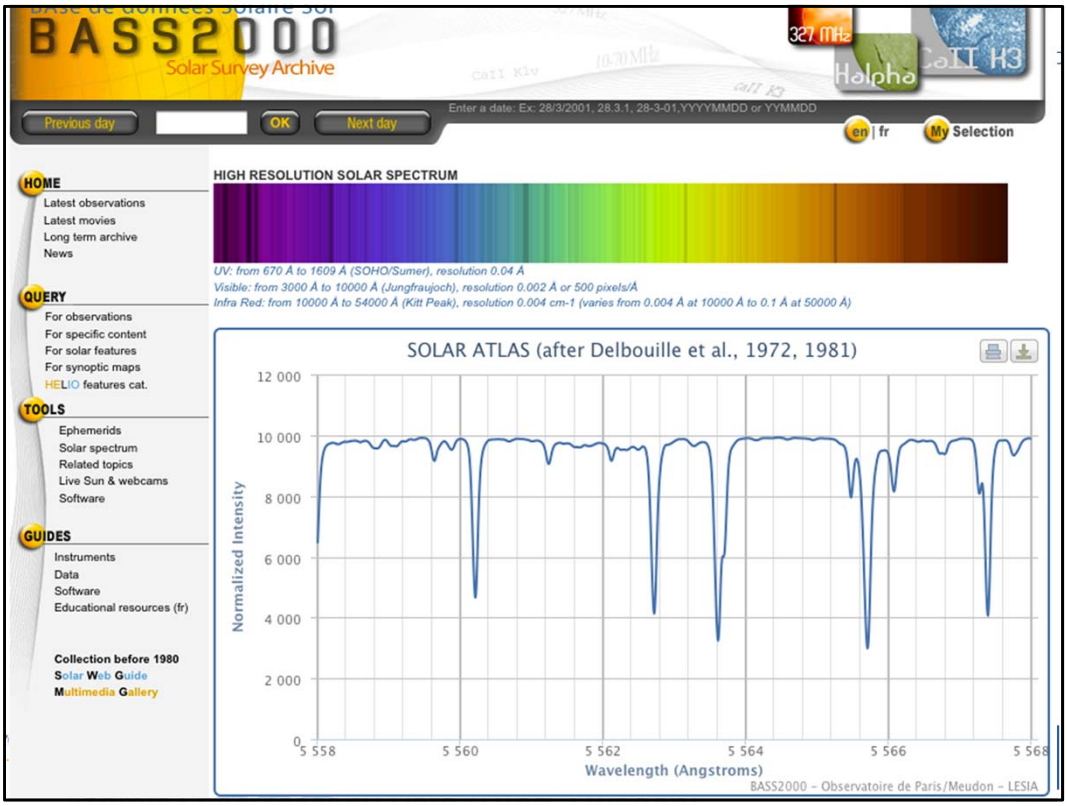
Accessing VAMDC from User's Tool Specview Software

- Specview is a java tool for 1-D spectra visualization www.stsci.edu/institute/software_hardware/specview/ (I. Busko)

SSAP VO




BASS2000
Solar Survey Archive
327 MHz
Halpha
CaII H3
Previous day
OK
Next day
Enter a date: Ex: 28/3/2001, 28.3.1, 28-3-01,YYYYMMDD or YYMMDD
en | fr
My Selection
HOME
Latest observations
Latest movies
Long term archive
News
QUERY
For observations
For specific content
For solar features
For synoptic maps
HELIO features cat.
TOOLS
Ephemerids
Solar spectrum
Related topics
Live Sun & webcams
Software
GUIDES
Instruments
Data
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Educational resources (fr)
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Multimedia Gallery
HIGH RESOLUTION SOLAR SPECTRUM
UV: from 670 Å to 1609 Å (SOHO/Sumer), resolution 0.04 Å
Visible: from 3000 Å to 10000 Å (Jungfraujoch), resolution 0.002 Å or 500 pixels/Å
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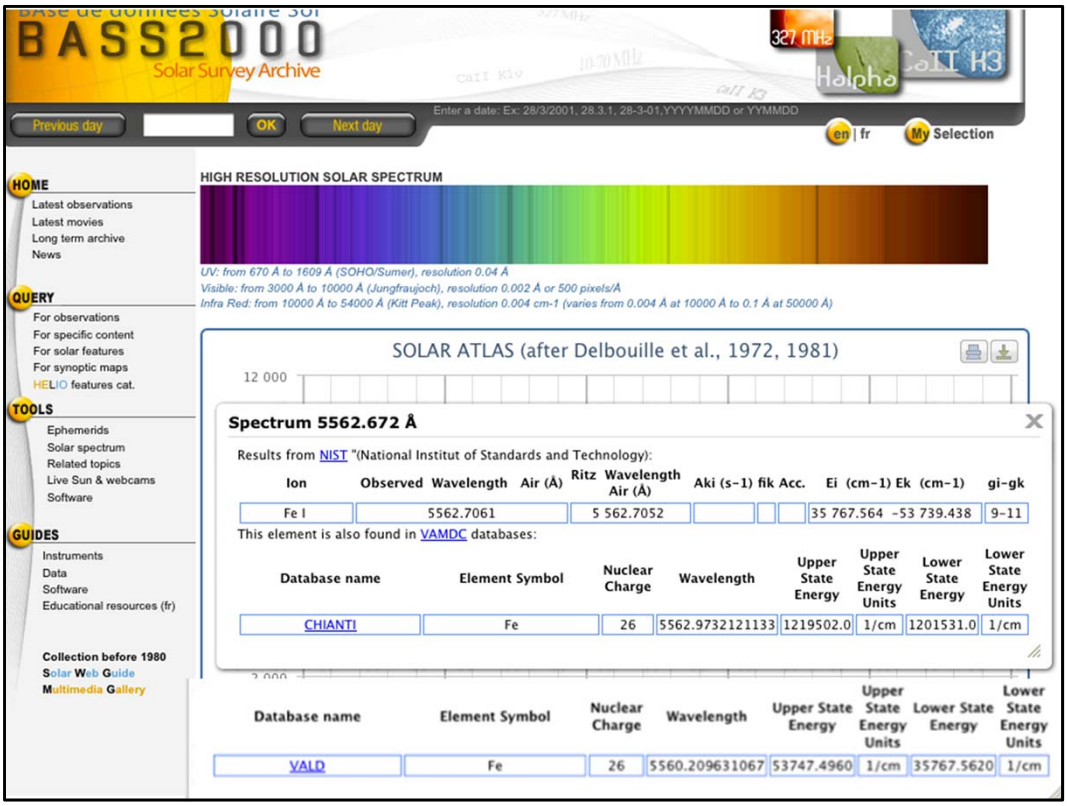
SOLAR ATLAS (after Delbouille et al., 1972, 1981)
Normalized Intensity
12 000
10 000
8 000
6 000
4 000
2 000
0
5 558
5 560
5 562
5 564
5 566
5 568
Wavelength (Angstroms)
BASS2000 – Observatoire de Paris/Meudon – LESIA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Long term archive
News
QUERY
For observations
For specific content
For solar features
For synoptic maps
HELIO features cat.
TOOLS
Ephemerids
Solar spectrum
Related topics
Live Sun & webcams
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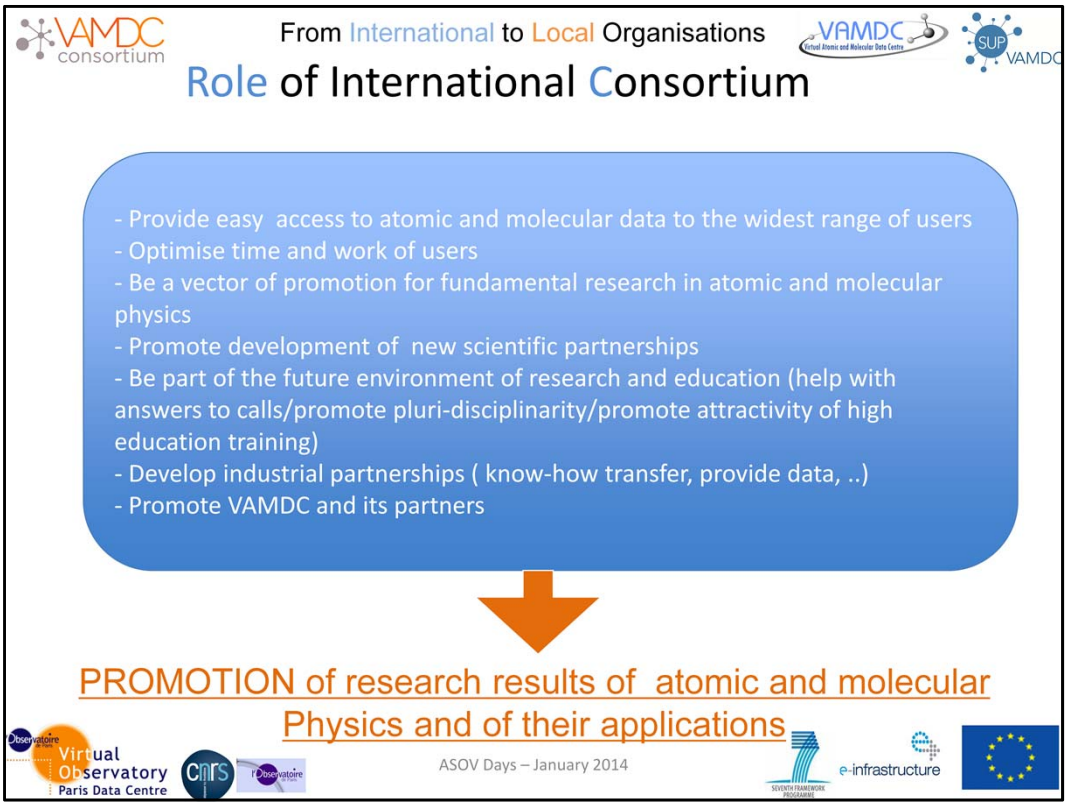
SOLAR ATLAS (after Delbouille et al., 1972, 1981)
12 000
Spectrum 5562.672 Å
Results from NIST "(National Institut of Standards and Technology):
Ion | Observed Wavelength Air (Å) | Ritz Wavelength Air (Å) | Aki (s-1) | fik | Acc. | Ei (cm-1) | Ek (cm-1) | gi-gk
Fe I | 5562.7061 | 5 562.7052 | | | | 35 767.564 | -53 739.438 | 9-11
This element is also found in VAMDC databases:
Database name | Element Symbol | Nuclear Charge | Wavelength | Upper State Energy | Upper State Energy Units | Lower State Energy | Lower State Energy Units
CHIANTI | Fe | 26 | 5562.9732121133 | 1219502.0 | 1/cm | 1201531.0 | 1/cm
Database name | Element Symbol | Nuclear Charge | Wavelength | Upper State Energy | Upper State Energy Units | Lower State Energy | Lower State Energy Units
VALD | Fe | 26 | 5560.209631067 | 53747.4960 | 1/cm | 35767.5620 | 1/cm

VAMDC Products

- **Support =**
  - **Send mail to** support@vamdc.eu
  - Go to vamdc.eu/usersupport
  - Tutorial (different types)
- Portal = http://portal.vamdc.eu
- Software and Librairies = http://vamdc.eu/software
- Standards = http://vamdc.eu/standards
- Forums


From International to Local Organisations
Role of International Consortium
- Provide easy access to atomic and molecular data to the widest range of users
- Optimise time and work of users
- Be a vector of promotion for fundamental research in atomic and molecular physics
- Promote development of new scientific partnerships
- Be part of the future environment of research and education (help with answers to calls/promote pluri-disciplinarity/promote attractivity of high education training)
- Develop industrial partnerships (know-how transfer, provide data, ..)
- Promote VAMDC and its partners
PROMOTION of research results of atomic and molecular Physics and of their applications
ASOV Days – January 2014

From International to Local Organisations

Pôle Thématique National F-VAMDC

- Fait la promotion et anime la diffusion des données de physique atomique et moléculaire en France, en suivant la charte de qualité du consortium VAMDC (organisation de meetings, tutoriaux)
- A un avis consultatif sur les activités françaises vis-a-vis des instances francaises, cet avis étant donné par le collectif = c-a-d les membres de F-VAMDC
- Répond aux besoins des utilisateurs astrophysiques français ou se fait l'interlocuteur auprès de VAMDC des besoins de ces utilisateurs (chacun dans son domaine)
- S'appuie sur les centres d'expertise, son université, sa région, son institut CNRS au niveau des moyens humains et financiers
- Lieu d'échange pour les solutions techniques, Mutualisation des moyens est une possibilités
- Chaque membre de F-VAMDC maintient ses bases de données et ses services en suivant la charte VAMDC

- Chaque membre est individuellement membre de VAMDC International

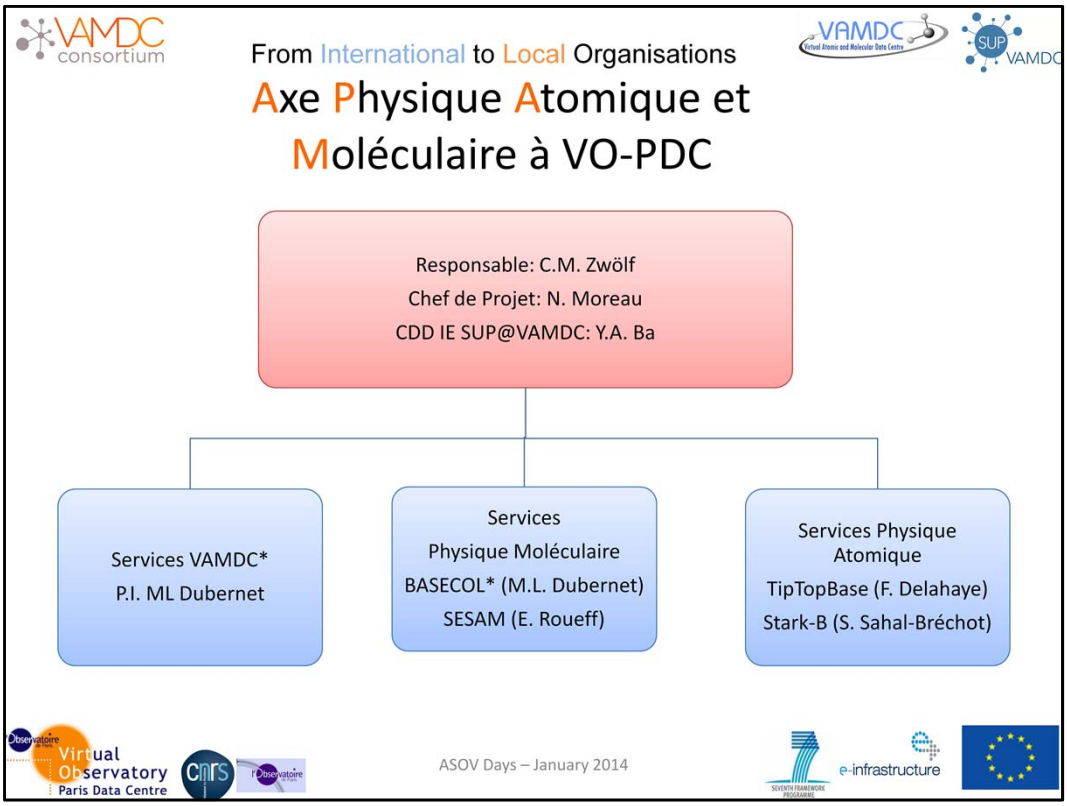
From International to Local Organisations

Pôle Thématique National F-VAMDC

- OV-GSO (OSU Bordeaux + OSU Toulouse)
- OSU THETA
- Observatoire de Paris

- Avec des laboratoires associés qui ne sont pas dans des OSU
- Université de Lille
- Université de Champagne-Ardenne
- Autres

- Comité Pilotage: OSU, INSU, PN, P.I. Scientifiques des services, Responsable Technique (N. Moreau) et Coordinateur.
- Comité Utilisateur: les producteurs et les utilisateurs de données/standards/software/clients (chaque base a son propre comité utilisateur)


VAMDC consortium
From International to Local Organisations
VAMDC
SUP VAMDC
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Services Physique Atomique
TipTopBase (F. Delahaye)
Stark-B (S. Sahal-Bréchot)
Virtual Observatory
Paris Data Centre
CNRS
ASOV Days – January 2014
e-infrastructure