



# Theory - Bilan 2014

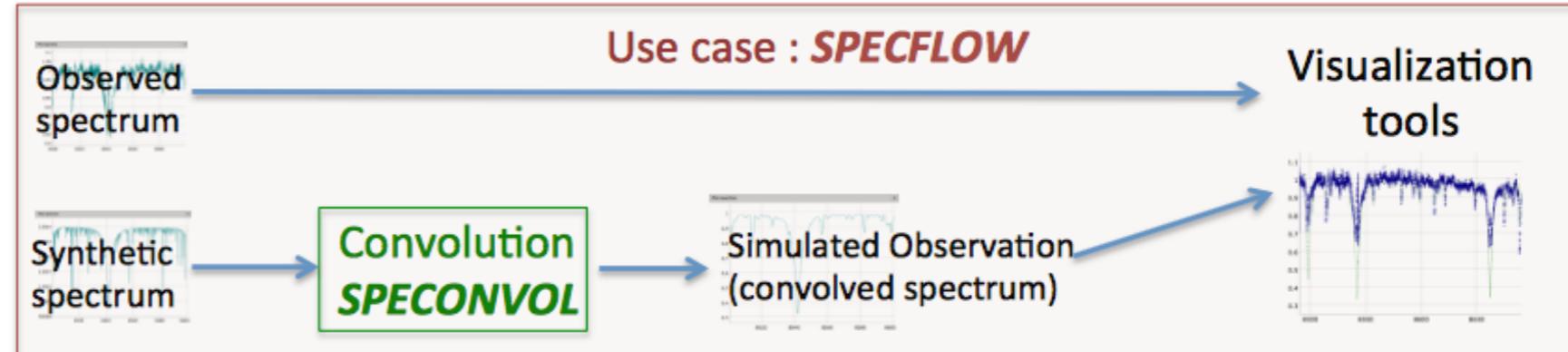
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Franck Le Petit

# SimDAL

Activités en 2014

## InterOp de l'ESAC



### Présentations sur:

- SPECCONVOL & SPECFLOW - M. Sanguillon (OV-GSO / LUPM)
- Astrochimie - F. Le Petit (LERMA / VO-Paris)
- Asterosismology - C.-R. Para (SVO)
- Galaxies - D. Fabjan (Trieste)

### Finalisation des grandes lignes de SimDAL

3 parties :

- ① Simulations description registry
- ② Simulation search
- ③ Simulations data access / cutout

[http://wiki.ivoa.net/internal/IVOA/InterOpMay2014Theory/InterOpESAC14\\_Theory\\_SimDAL.pdf](http://wiki.ivoa.net/internal/IVOA/InterOpMay2014Theory/InterOpESAC14_Theory_SimDAL.pdf)

Activités en 2014

## Réunion du groupe Theory à Paris

2-3 décembre 2014

### Participants:

D. Languignon, F. Le Petit, M.  
Molinaro, C.-R. Para, H. Wozniak  
B. Godard, B. Debray, M. Sanguillon

- Convergence sur les points techniques
- Définition d'un planning pour le document

### Planning

- Actuellement : rédaction
- Working draft pour fin mai
- Soumis à l'IVOA à l'InterOp de Sesto



### Simulation Data Access Layer Version 1.0

#### IVOA Working Draft December, 24th, 2014

Working group  
DAL

This version  
<http://www.ivoa.net/documents/simdal/December, 24th, 2014>

Latest version  
<http://www.ivoa.net/documents/simdal>

Previous versions  
This is the first public release

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Editor(s)  
David Languignon, Franck Le Petit

### Abstract

#### Status of This Document

This is an IVOA Working Draft for review by IVOA members and other interested parties. It is a draft document and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use IVOA Working Drafts as reference materials or to cite them as other than “work in progress”.

A list of current IVOA Recommendations and other technical documents can be found at <http://www.ivoa.net/Documents/>.

### Contents

# Développement de services avec SimDAL

Besoin de plusieurs implémentations pour tester & valider la proposition de standard

## Base de données de la plateforme MIS & Jets

Base de données de modèles PDR

**ISM Services**    CODES & DATABASES *access to services*    TECHNOLOGIES *standards*    PARTNERS *credits*

**Plot axis**

X: nH (input parameter) (cm<sup>-3</sup>)  log scale

Y: ISRF scaling factor (obs side) (Mathis\_unit)  log scale

**Fixed axis**

AVmax (mag) 0.5

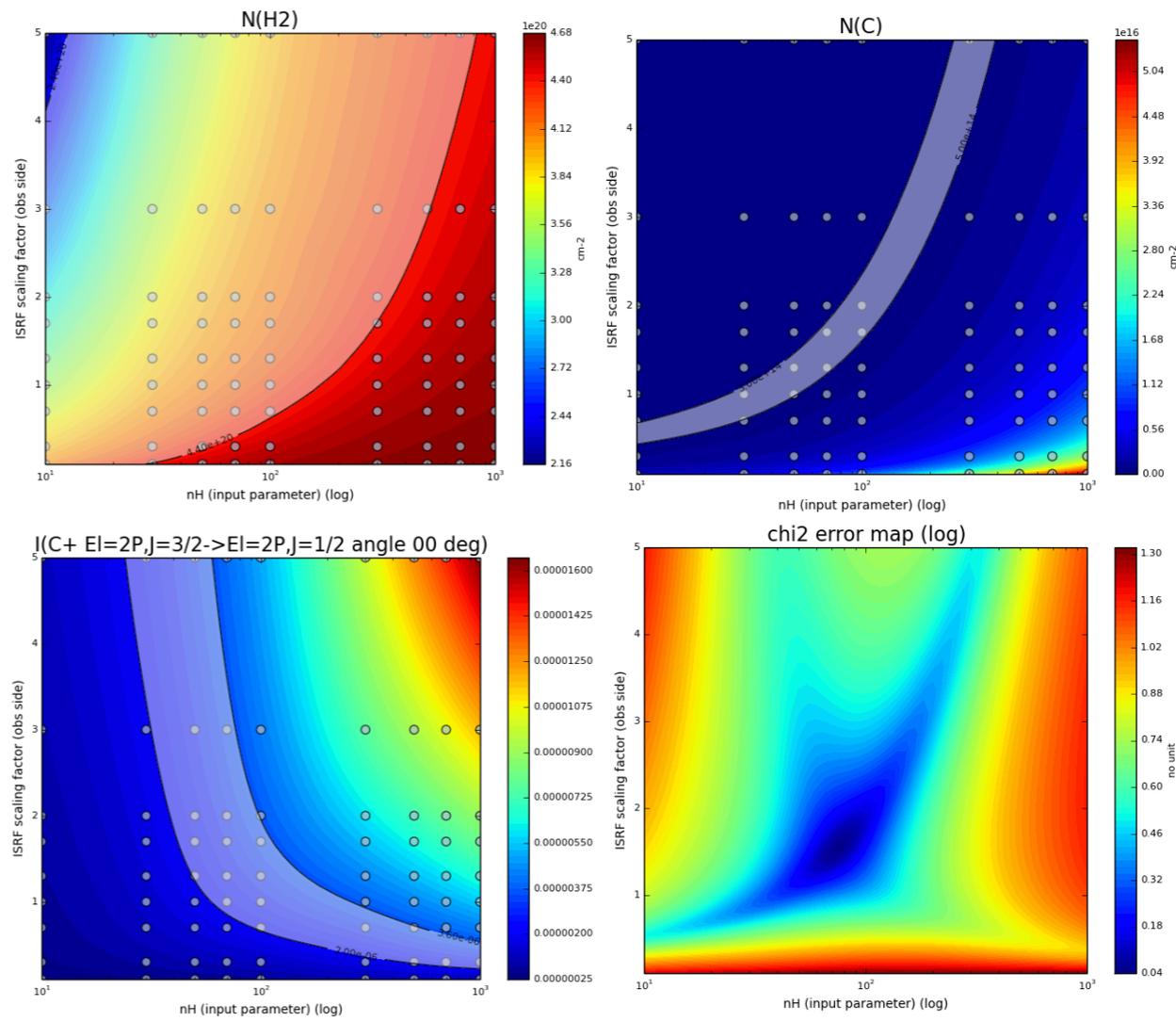
**Axis constraints**

ex: N(Fe+) > 6e12

Add N(Fe+)

- N(H2) > 2.4E20
- N(H2) < 4.4E20
- N(C) > 3.0E14
- N(C) < 5.0E14
- I(C+ EI=2P,J=3/2->EI=2P,J=1/2 angle 00 deg) > 2E-6

Plot



# Développement de services avec SimDAL

## Galaxies & Galaxies cluster

Equipe de cosmologie de Trieste

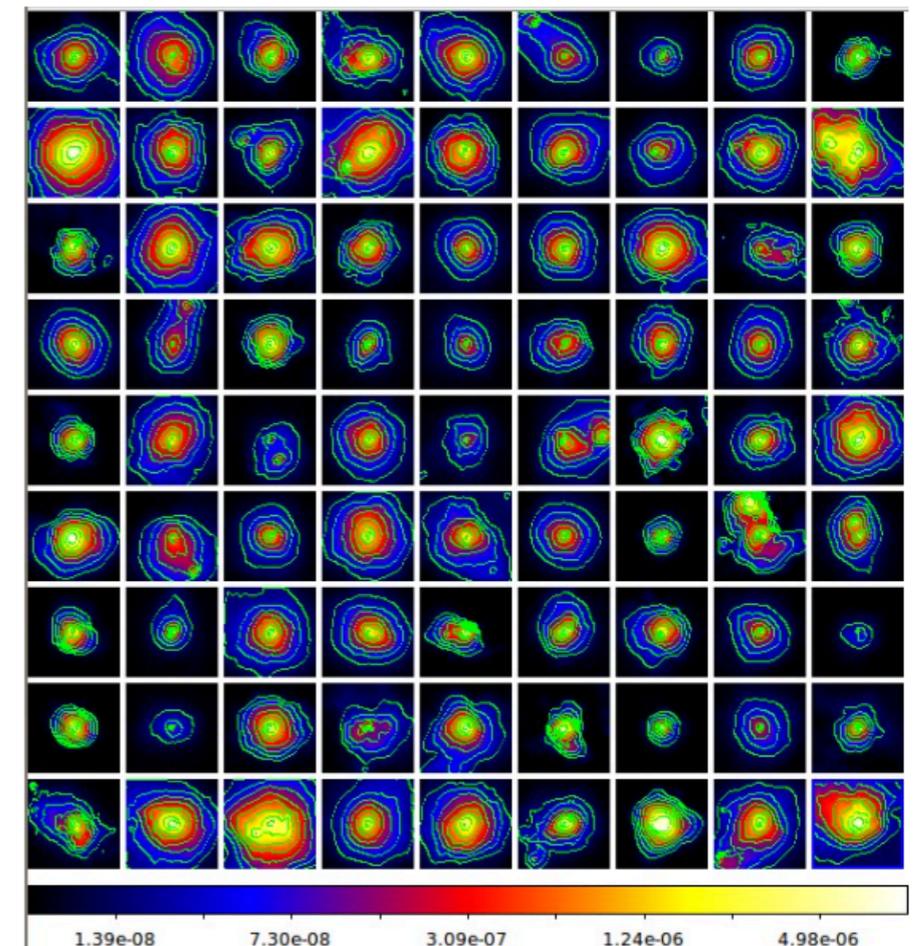
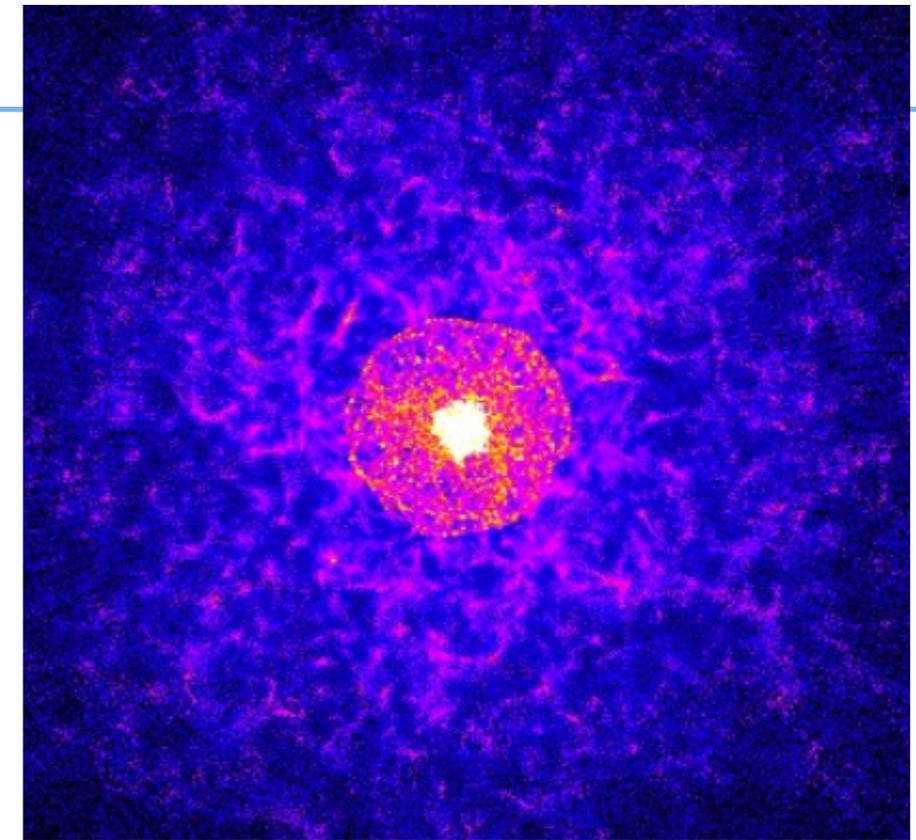
S. Borgani, G. De Lucia, D. Fabjan,

M. Molinaro, P. Monaco, G. Murante, R. Smareglia

- N-body integrator for (DM dominated) gravity + hydrodynamic scheme for collisional (gas) fluid elements.
- **Initial conditions** to reproduce the the CMB anisotropies.
- Integration performed in comoving coordinates.

Products: positions, velocities, densities  
temperatures, SFR, metallicities, ...

Several tens of snapshots 1-100 GB each  
100 GB => 1-10 TB per run



# Développement de services avec SimDAL

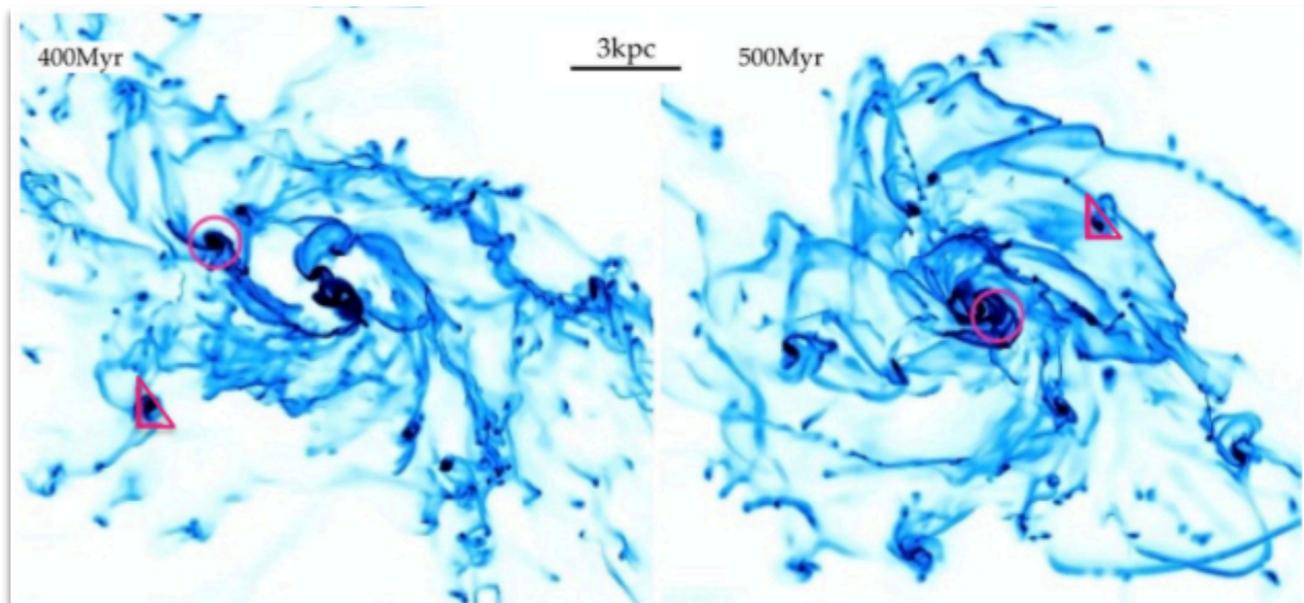
Diffusion de simulations au CEA

Recrutement de Damien Chapon - dec. 2014

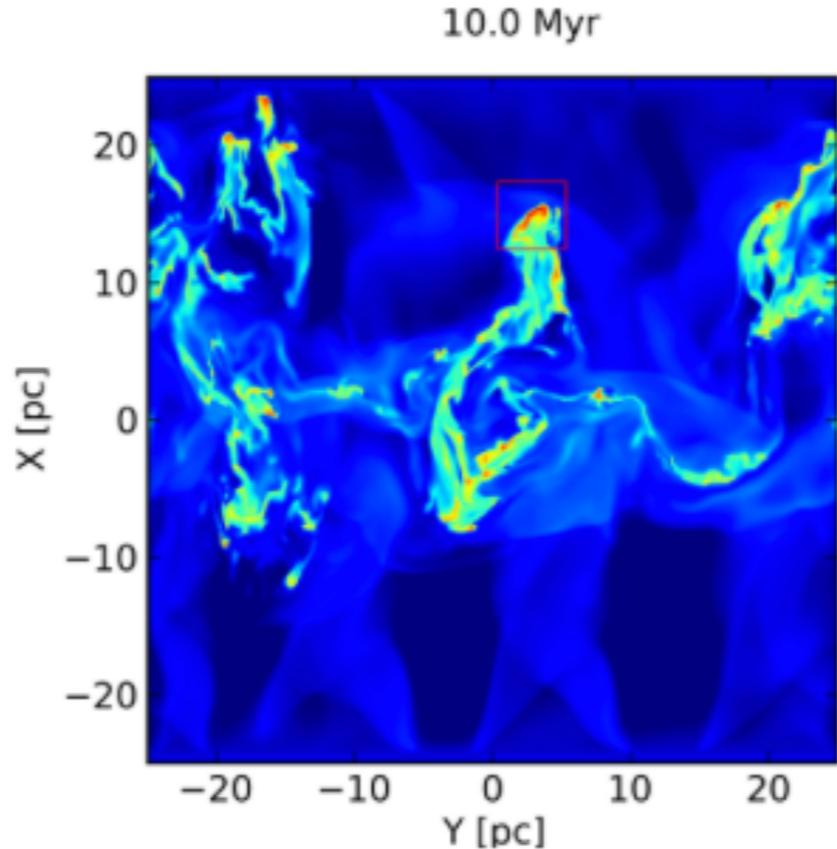
**Objectif:** bases de données de différents types de simulations lourdes

- Simulations de galaxies - F. Bournaud
- Simulations du gaz interstellaire - P. Hennebelle
- Physique stellaire - S. Brun
- ...

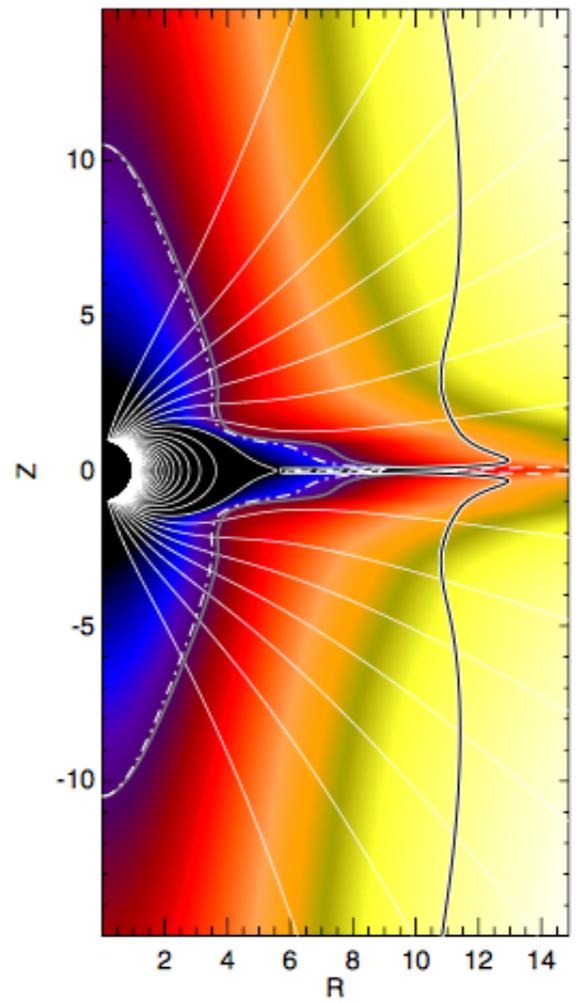
+ post-traitements à la volée envisagés



F. Bournaud



P. Hennebelle



S. Brun

# Développement de services avec SimDAL

- POLLUX

- Modèle de la Galaxie de Besançon

- CASSIS

**Model of stellar population synthesis of the Galaxy**  
**Catalogue simulation without kinematics, Johnson-Cousins photometric system**

To get help on parameters and values to supply, click on ?

**Field of view :**

- Distance interval (kpc) : [ 0.000000 , 50.000000 ]  
 Distance step mode: progressive
- specify step value (in parsecs) if linear mode or  $\Delta r/r$  if logarithmic mode: 0.000
- field:
  - ▣ small field (defined by the center of the field and its surface) :  
 Longitude : 200.00 Latitude : 59.00 Solid angle (deg<sup>2</sup>) : 1.000000
  - ▢ large field (field defined by galactic longitude and latitude) :  
 Coordinate system: galactic coordinates  
 If equatorial coordinates, specify equinox: 2000.0

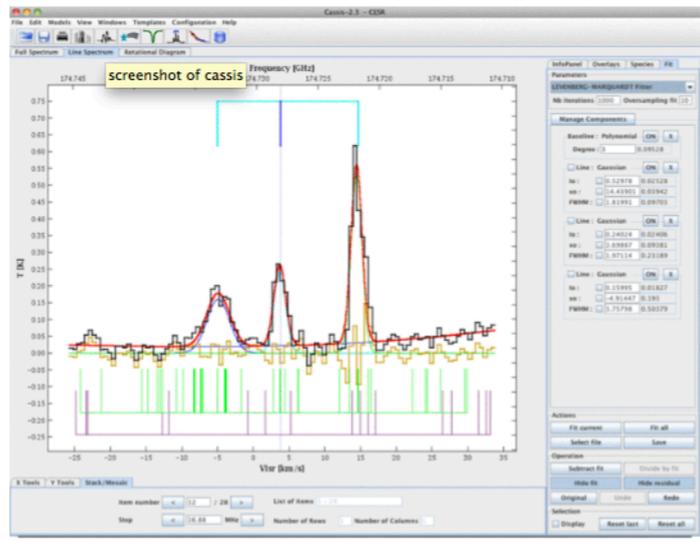
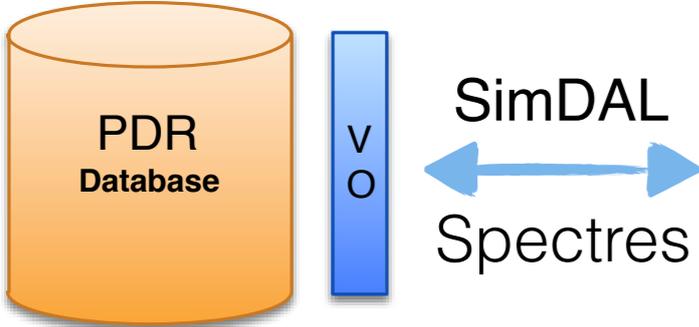
	minimum	maximum	step
Galactic longitude or right ascension (decimal degrees):	[ 200.00 ]	[ 200.00 ]	[ 1.00 ]
Galactic latitude or declination (decimal degrees):	[ 59.00 ]	[ 59.00 ]	[ 1.00 ]

**Extinction law**

Diffuse extinction: 0.700 mag/kpc  
*(A mean diffuse absorption of 0.7 mag/kpc is recommended for intermediate and high latitude fields. It may be modified.)*

Discrete clouds:

cloud n°	absorption (A <sub>v</sub> )	distance (pc)	cloud n°	absorption (A <sub>v</sub> )	distance (pc)	cloud n°	absorption (A <sub>v</sub> )	distance (pc)
1:			2:			3:		
4:			5:			6:		
7:			8:			9:		
10:			11:			12:		
13:			14:			15:		
16:			17:			18:		
19:			20:			21:		
22:			23:			24:		
25:								



Cassis - OV-GSO