

# Science Priorities wrap-up

**Bruno Merín**

IVOA Committee on Science Priorities (CSP)

<https://goo.gl/2ALRxV>

European Space Agency

IVOA Interop, Santiago, 27/10/2017

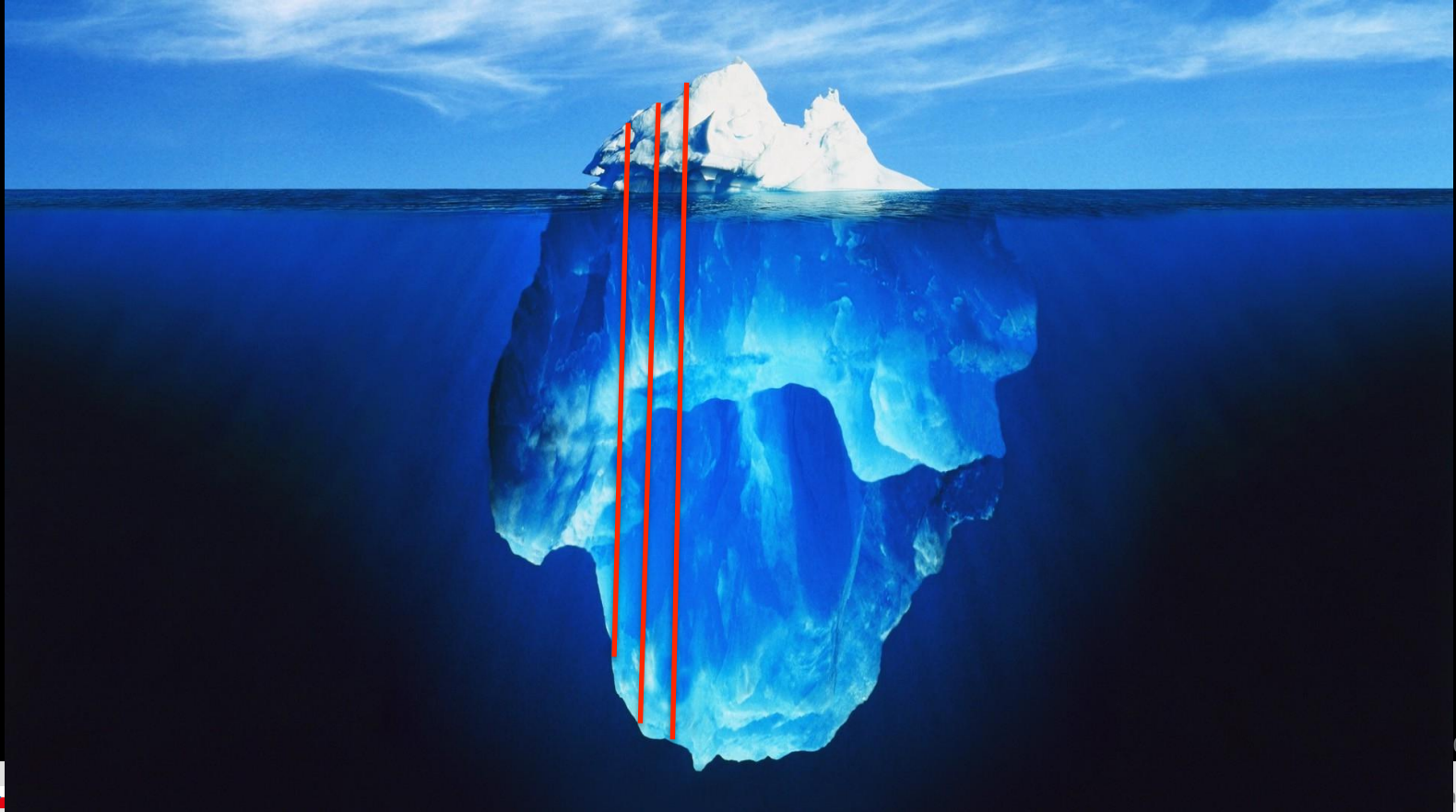
# So what do scientists need?



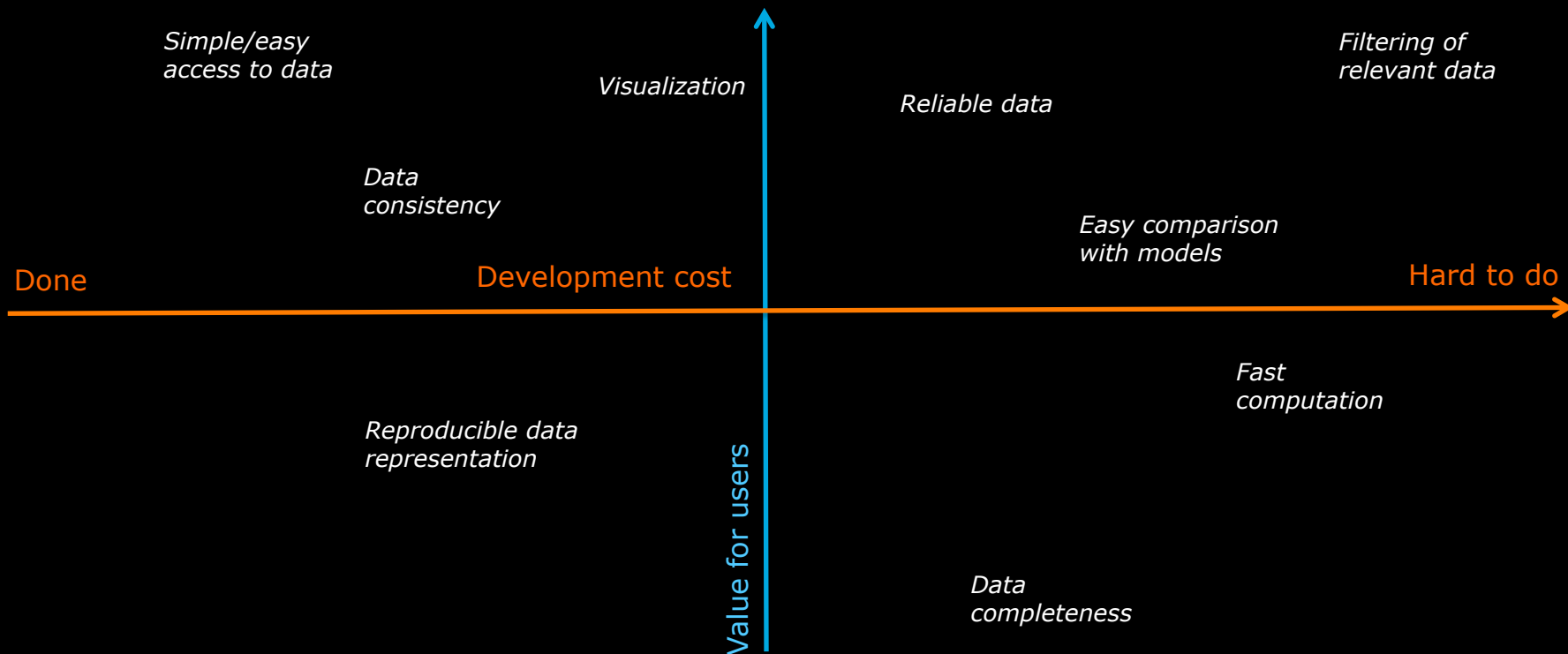
1. *Visualization tools*
2. *Simple / easy access to reliable and relevant data*
3. *Fast computation on new data*
4. *Easy comparison tools between data and models/theory*
5. *Data completeness and consistency*
6. *Reproducible data representation*



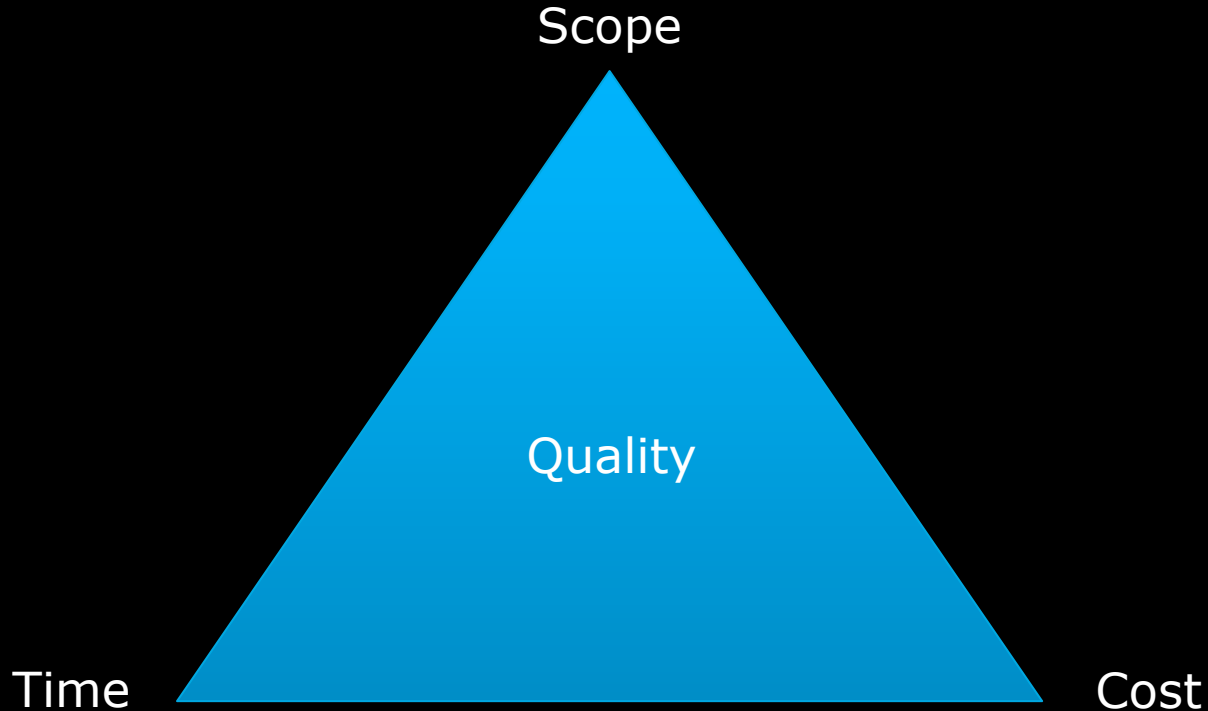
# Very important things happening underneath



# So what should we focus on?



# We should focus on high-value developments



- Time-domain astronomy: light-curves -> VOEvent and Data Models
- Multi-dimensional data: spectral or time cubes (sky + wavelength/frequency or sky + time)
- New priorities ? (yet to be endorsed by Exec):
  - An IVOA portal : one single place where users will find **all** data
    - TOPCAT, Aladin and other tools already implement this idea !!

# A possible prototype idea by ESO related to the Portal



TAP Service:

Service type:

REQUEST:

FORMAT:

LANG:

MAXREC:

QUERY:

SELECT TOP 100  
dist from GC  
FROM ivoa.Observe  
WHERE dataproduct\_type='image'  
AND INTERSECTS(CIRCLE('ICRS',266.42,-29.0,5),s\_region) = 1 -- intersecting (aka overlapping) a 5 deg cone around  
Galactic Centre  
AND ((em\_min < 1.25E-6 AND em\_max > 1.25E-6) -- Contains lambda(J) or  
OR (em\_min < 1.65E-6 AND em\_max > 1.65E-6) -- Contains lambda(H) or  
OR (em\_min < 2.2E-6 AND em\_max > 2.2E-6)) -- Contains lambda(Ks)  
AND em\_res\_power < 20 -- Low spectral resolving power, includes both images and source tables  
ORDER BY 4 -- 4 is the position of the s\_resolution within fields in the SELECT

[http://aspint.hq.eso.org:8889/esotap/sync?REQUEST=doQuery&LANG=ADQL&MAXREC=200&FORMAT=text&QUERY=SELECT%20TOP%20100%20instrument\\_name,%20em\\_min,%20em\\_max,%20s\\_resolution,%20distance\(point\(%27%27.s\\_ra,s\\_dec\),point\(%27%27.266.42,-29.0\)\)](http://aspint.hq.eso.org:8889/esotap/sync?REQUEST=doQuery&LANG=ADQL&MAXREC=200&FORMAT=text&QUERY=SELECT%20TOP%20100%20instrument_name,%20em_min,%20em_max,%20s_resolution,%20distance(point(%27%27.s_ra,s_dec),point(%27%27.266.42,-29.0)))

its list of jobs:

xt/xml

query here below, or choose one of the use

ing a 5 deg cone around the Galactic Centre in J, H, or Ks

e(point(",s\_ra,s\_dec),point(",266.42,-29.0)) a

A. Micol



# A possible prototype idea by ESO related to the Portal



## Dataset Landing Page

Access to specific info for this ID:  (datatype: spectrum)

Retrieve its [DataLink](#) [ObsCore](#) [SSAP](#) [datatype](#) [preview](#) [preview\\_spec](#) [header](#) [hips](#) [details](#) [landingpage](#)

Possible tests (click on them to set the ID):

- ADP.2011-06-24T14:56:30.093 (VVV filter=Ks tile image)
- ADP.2011-06-24T14:55:29.867 (VVV filter=Ks tile image)
- ADP.2011-06-24T14:55:29.100 (VVV filter=Z tile image)
- ADP.2014-10-01T10:19:21.580 (HARPS spectrum)
- ADP.2013-09-24T20:31:57.113 (UVES spectrum SN1987A)
- ADP.2013-09-24T20:31:57.160 (UVES spectrum SN1987A)



### ObsCore Full Record

abmaglim	
access_estsize	5261760
access_format	"application/x-votable+xml;content=
access_url	"http://as pint:8892/datalink/links?ID=
bib_reference	" "
calib_level	2
dataproduct_subtype	
dataproduct_type	"spectrum"
dp_id	"ADP.2014-10-01T10:19:21.580"
em_max	6.912799999999999E-7
em_min	3.78153E-7
em res power	115000.0

### Header of ADP.2014-10-01T10:19:21.580

```
SIMPLE = T / file does conform to
BITPIX = 8 / number of bits per c
NAXIS = 0 / number of data axes
EXTEND = T / FITS dataset may co
COMMENT FITS (Flexible Image Transport System) fo
COMMENT and Astrophysics', volume 376, page 359;
DATE = '2010-07-28T01:03:52.911' / Date this i
INSTRUME = 'HARPS' / Instrument used
RA = 123.269560 / 08:13:04.6 RA (J2000)
DEC = -34.57804 / -34:34:40.9 DEC (J20
EQUINOX = 2000. / Standard FK5 (years)
RADECSYS = 'FK5' / Coordinate reference
EXPTIME = 868.9969 / Total integration t:
MJD-OBS = 53052.12677353 / MJD start (2004-02-
DATE-OBS = '2004-02-17T03:02:33.232' / Date of obs
UTC = 10948.000 / 03:02:28.000 UTC
LST = 29118.403 / 08:05:18.403 LST
```



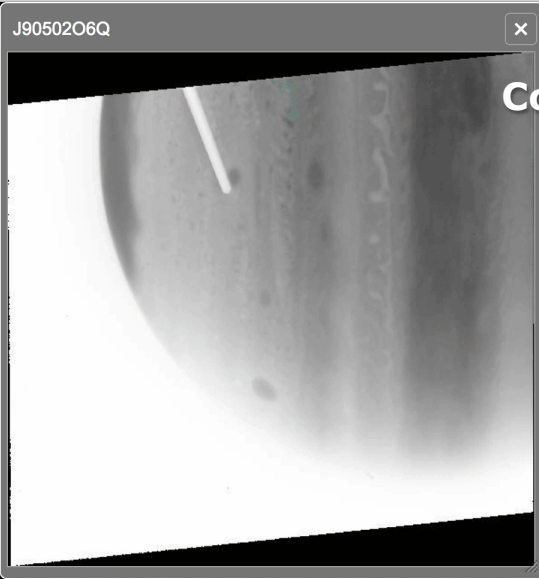
- Time-domain astronomy: light-curves -> VOEvent and Data Models
- Multi-dimensional data: spectral or time cubes (sky + wavelength/frequency or sky + time)
- New priorities ? (yet to be endorsed by Exec):
  - An IVOA portal : one single place where users will find **all** data
- More suggestions:
  - Standard for science platforms? (check [scienceplatforms.slack.com](https://scienceplatforms.slack.com))
  - Virtual Reality/Advanced Reality standards?
  - Other growing areas/priorities?

J2000 13 29 52.698 +47 11 42.93 FoV: 59.96'

Sky:DSS2 color

- 1 166
- 141 399
- 184
- 1 010

Keep up the good work and see you in Victoria !



ganymede

Committee on Science Priorities :  
csp@ivoa.net

Bruno.Merin@esa.int  
@BrunoMerin

https://goo.gl/2ALRxV

HST Ganymede (Satellite)

	Observation ID	RA (J2000)	Dec (J2000)	Target Name	Instrument	Collection	Filter	Start Time	Duration (s)
	J9050206Q	13h 10' 25.43"	-05d 59' 21.0"	JUPITER+GANYMEDE	ACS	HST	F892N	2005-01-19 22:24:40.0	10
	J9050205Q	13h 10' 25.42"	-05d 59' 20.9"	JUPITER+GANYMEDE	ACS	HST	F658N	2005-01-19 22:23:11.0	10
	J9050204Q	13h 10' 25.41"	-05d 59' 20.9"	JUPITER+GANYMEDE	ACS	HST	F550M	2005-01-19 22:21:41.0	3
	HST_10192_02_ACS_HRC	13h 10' 25.41"	-05d 59' 20.9"	JUPITER+GANYMEDE	ACS	HLA	F550M	2005-01-19 22:21:41.0	3
	J9050203Q	13h 10' 25.40"	-05d 59' 20.8"	JUPITER+GANYMEDE	ACS	HST	F435W	2005-01-19 22:20:05.0	3
	J9050202Q	13h 10' 25.39"	-05d 59' 20.8"	JUPITER+GANYMEDE	ACS	HST	F330W	2005-01-19 22:18:38.0	10
	J9050201Q	13h 10' 25.38"	-05d 59' 20.7"	JUPITER+GANYMEDE	ACS	HST	F250W	2005-01-19 22:17:09.0	20
	J9050200Q	13h 10' 25.37"	-05d 59' 20.7"	JUPITER+GANYMEDE	ACS	HST	F892N	2005-01-19 22:15:26.0	10
Total mission coverage							F892N	2005-01-19 22:15:26.0	10