



Science Verification and Early Science





Science Verification

Starting Jan 2011



★Goals:

- ★End to End Test of ALMA as a telescope before Early Science
- ★Provide images (and enthusiasm) to community

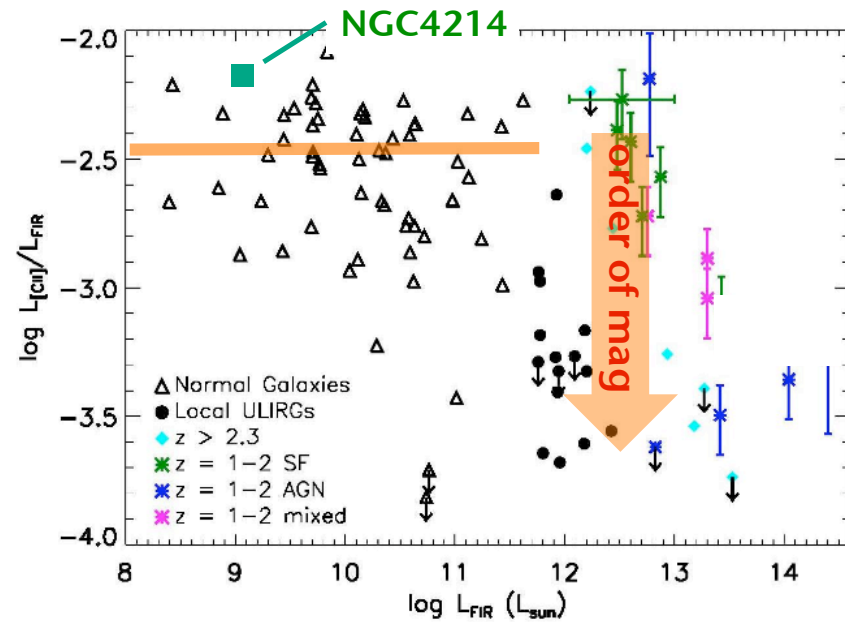
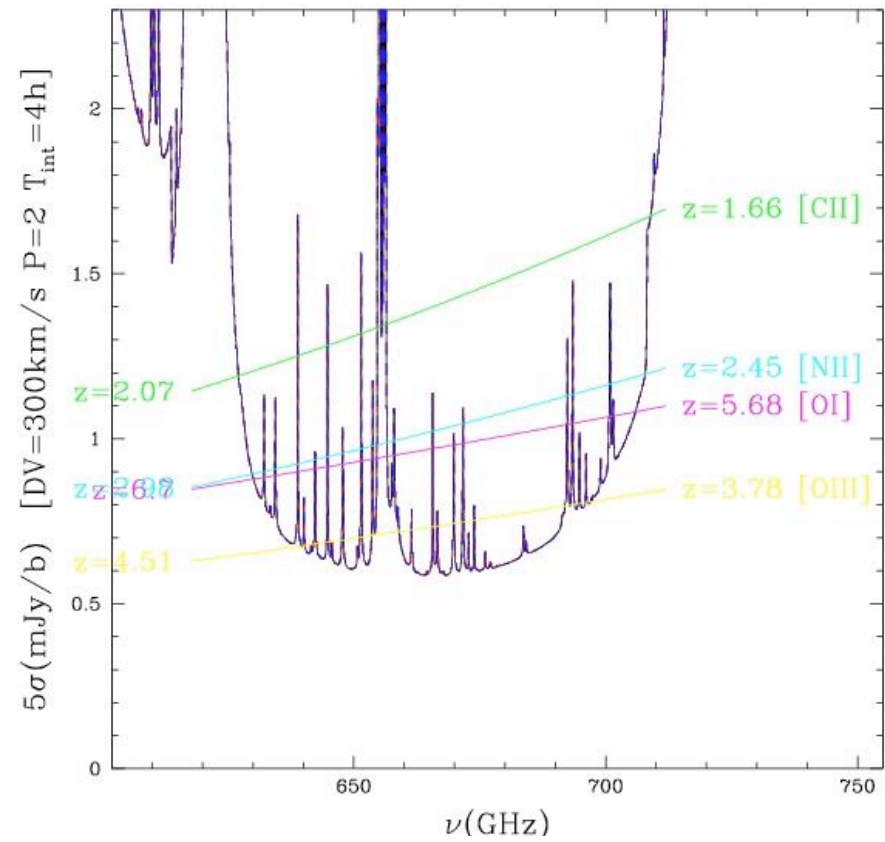
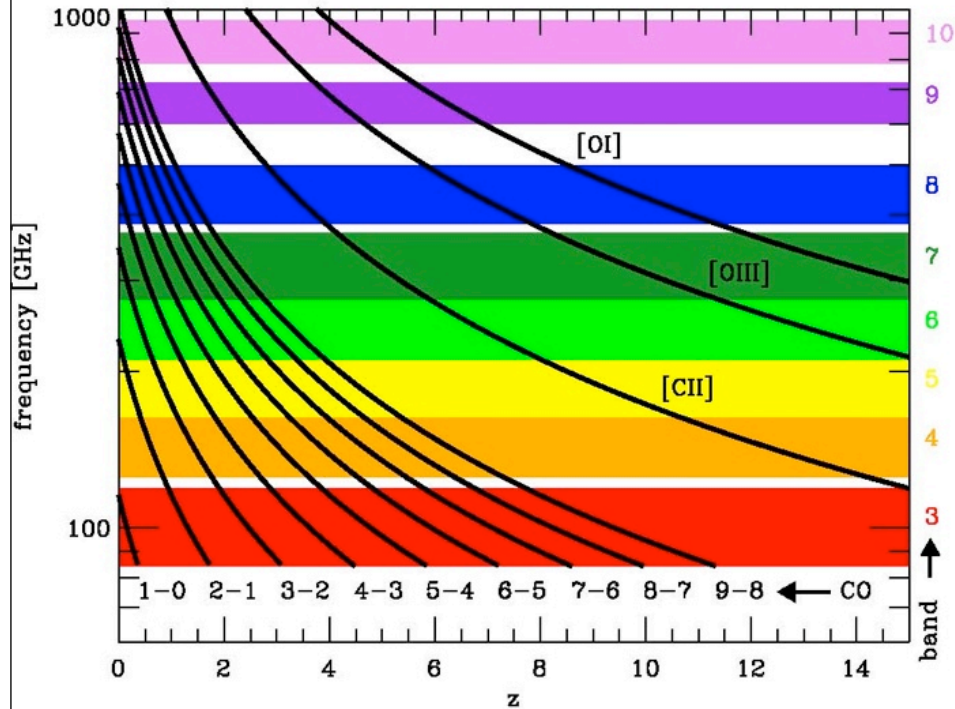
★Call for Suggestions

- ★Not full proposals, just a couple of paragraphs
- ★No full proposal review process, appropriate projects chosen by committee led by Project Scientist

★Data not proprietary

- ★Images released through EPO department
- ★Data available to any users who wish to try data reduction

[CII] or CO ??





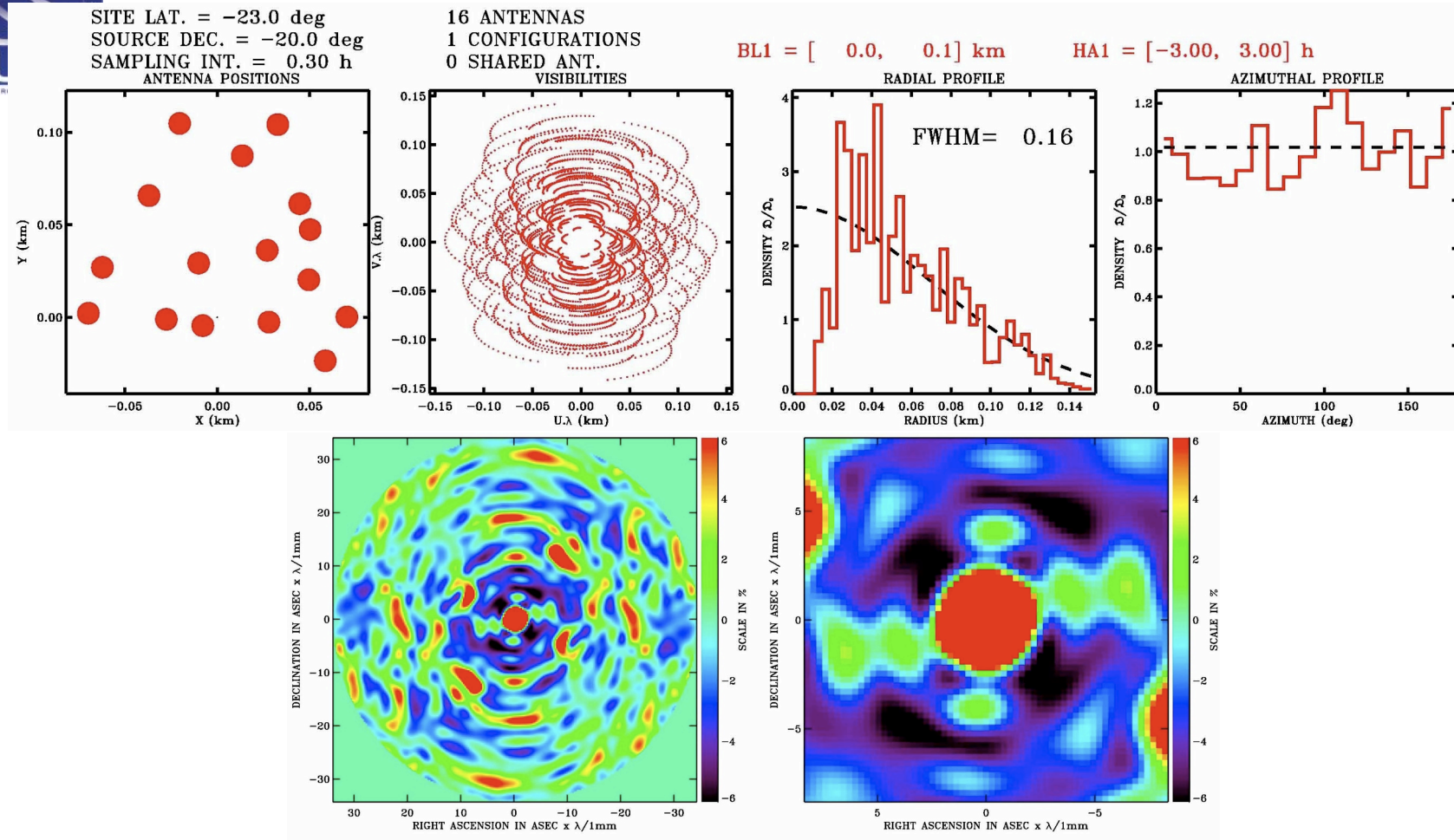
ALMA Early Science



- When?
 - Preliminary finalized at the ALMA Board in Chile
 - Call early spring 2011, deadline few months later
 - Observations Fall 2011
- What?
 - 16 antennas, 2 compact configurations, single field interferometry
 - Bands 3, 6, 7 and 9 (3mm, 1mm, 0.85mm, 0.45mm)
 - Several single spectral resolution, full polarization correlator modes
 - At most 30% of the available time for the first call (period Oct11-Jun12)
 - Maybe baselines up to 500m, maybe small mosaics
 - No Solar observations



Configurations for Cycle 0



(F. Boone, Nov 2010)

- Two configurations with max baselines ~ 160 and ~ 250 meters
- Possibly an additional configuration with longer baselines, if infrastructure is available and tested



Spectral modes for Cycle 0



FDM modes		Resolution (kHz)→							
Band-	MHz	7.6	15.3	30.5	61	122	244	488	977
width	2000						1	2	4
↓	1000					1	2	4	
	500				1	2	4		
	250			1	2	4			
	125		1	2	4				
	62.5	1	2	4					

TDM modes		Resolution (MHz) →		
Band-	MHz	7.8	15.6	31.3
width	2000	1	2	4

The number in each cell shows the number of polarization products provided: 1 – single pol, 2 – both polarizations, 4 – Full Stokes.



ALMA Early Science



- Limitations to be kept in mind:
 - Limited number of antennas:
 - limited sensitivity as compared to full ALMA
 - imaging requires Earth rotation synthesis
 - Limited angular resolution
 - No multi resolution available
 - Limited time available for science observations
 - ALMA capabilities ramping up FAST
 - ALMA ES capabilities and constraints are best suited for limited scope projects (as opposed to large scale surveys)
 - Typical project for ES should be few hrs (4-10) and deliver result!



Tentative
schedule

1	Jan 2011	Call for SV suggestions and Pre-announcement of ES	
2	Feb 2011		
3	Mar 2011	~end of month Call for Proposals	
4	Apr 2011		
5	May 2011		
6	Jun 2011	1-ish Opening of Archive ~end of month Deadline for Proposals	
7	Jul 2011		
8	Aug 2011		
9	Sep 2011	~end of month Start Cycle 0	
10	Oct 2011	Cycle 0	
11	Nov 2011	Cycle 0	
12	Dec 2011	Cycle 0	
1	Jan 2012	Cycle 0	
2	Feb 2012	Engineering shutdown?	1?: Call for Proposals Cycle 1
3	Mar 2012	Cycle 0	31?: Deadline for Proposals
4	Apr 2012	Cycle 0	
5	May 2012	Cycle 0	
6	Jun 2012	~ End Cycle 0	