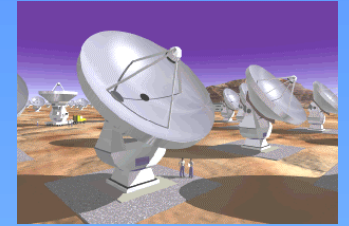


ALMA Proposal & Observation Preparation April 2002

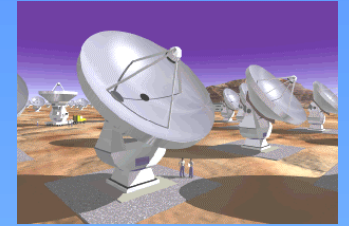
Alan Bridger, UK ATC

Scope: 1



- **Phase I, Proposal Preparation**
- **Phase II, Observation Preparation**
- **“Run Time Operation”, support for interactive observing**
- **Technical validation of prepared programs**
- **“Expert” mode/”Novice” mode**
- **Support for program review**

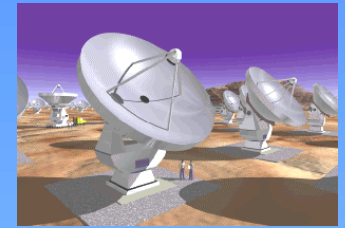
Scope: 2



- **Portable, for use by any ALMA user, across the community**
- **Easy to use, graphical user interface**
- **Feedback: on automatic choices, data rates, etc**
- **Interface to data simulator**
- **Interface to ALMA Observing System**

Aim for one tool, the *ALMA Observing Tool (OT)*

Observing Tool Concept: 1



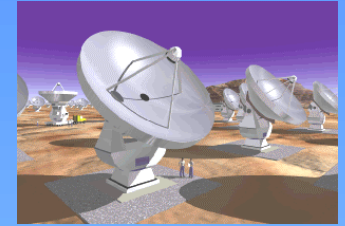
- Based on existing similar tools, P2PP (ESO), Gemini & ORAC OTs (Gemini & UKIRT/JCMT), SEA (NASA), any others?
- Hierarchical concept, with components as nodes of tree
- Program, made up of many Target Space definitions
- Target Space is top level target definition, containing basic science goals and definitions. Also composed of
 - Target Area: Multiple defined mapping areas
 - Frequency Setup: Central frequency, bandwidth, resolution, polarisation
 - Data Reduction Recipe: Data Reduction setup
 - Calibration: Calibration setup
- Scheduling blocks, derived from Target Space setup

Observing Tool Concept: 2

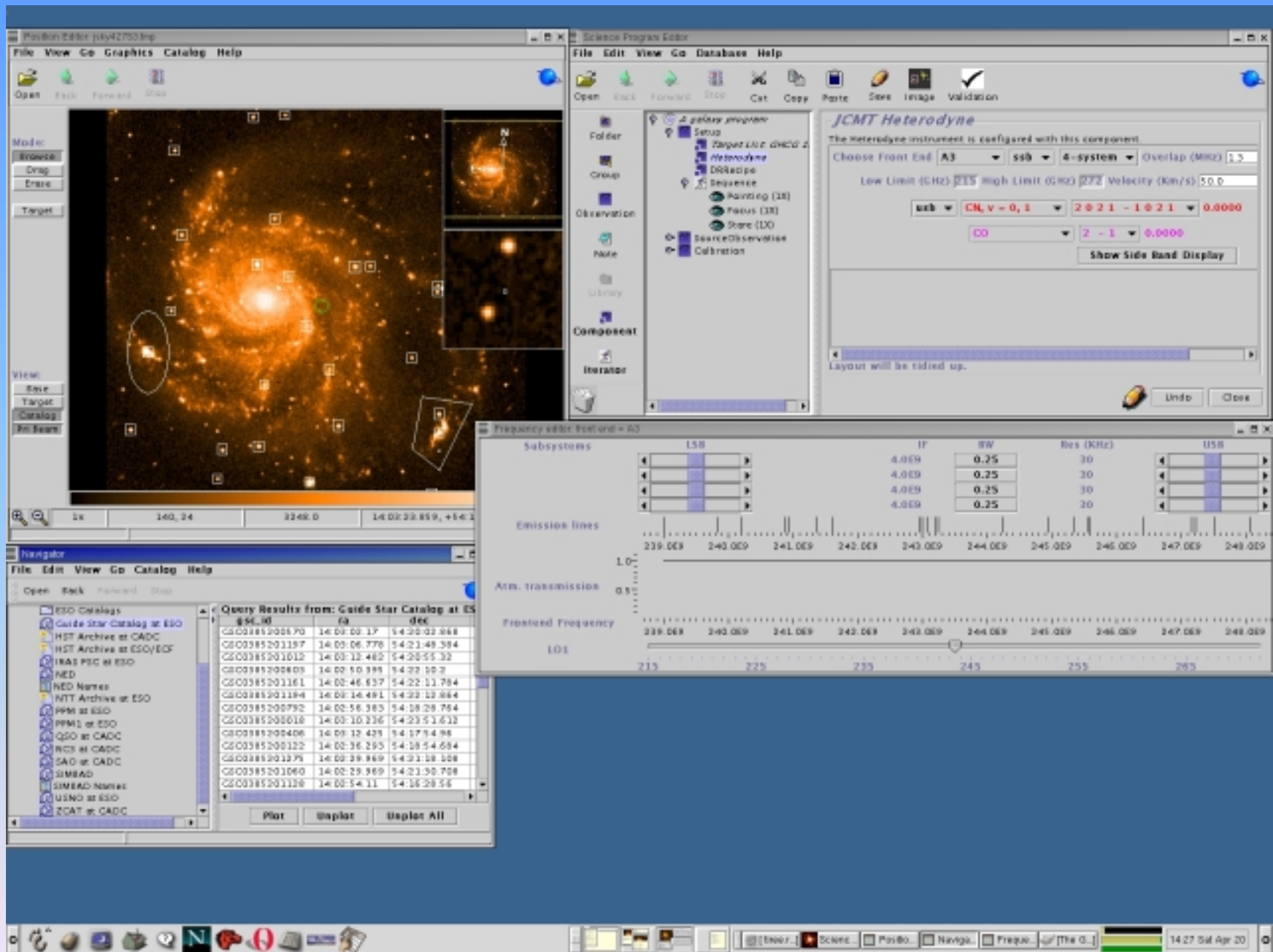


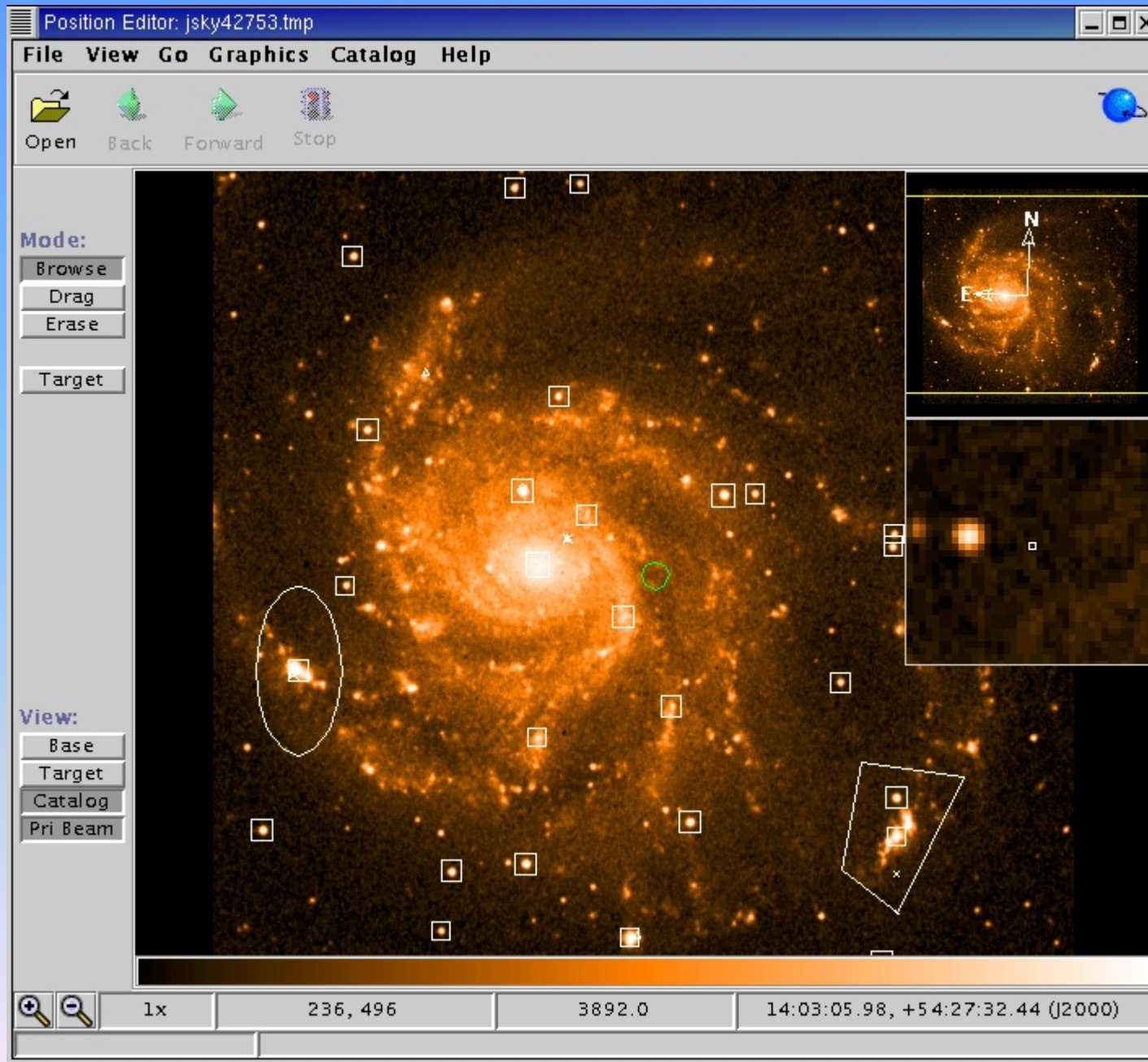
- **Phase I - Input science case, technical specs, program “admin”**
- **Phase II - Detailed observation details**
- **Both require security/authorisation**
- **Novice Mode:**
 - Very top level Target Space & Main component definition (Target Area & Frequency)
 - Phase I information perhaps sufficient
 - Use of “Templates”
 - Highly automated - no need to pay attention to calibration, data reduction, scheduling blocks
 - Feedback, on choices made, data rates, ...
- **Expert Mode**
 - All of above, but also...
 - Detailed component editing
 - Creation/Editing of Scheduling Blocks

Development Plan



- **5 Years, Collaboration UK ATC/ESO (4 year support option)**
- **Responsible: Alan Bridger, UK ATC**
- **Draft Concept document, Steve Scott (OVRO) & Alan Bridger**
- **Prototype in progress: to provide feedback this year**
- **Use of beta testers for later releases, to get feedback nearer to delivery**





Science Program Editor

File Edit View Go Database Help

Open Back Forward Stop Cut Copy Paste Save Image Validation

Folder
Group
Observation
Note
Library

A galaxy program
Setup
Target List: GHCG 1
Heterodyne
DRRecipe
Sequence
Pointing (1X)
Focus (1X)
Stare (1X)
SourceObservation
Calbration

JCMT Heterodyne

The Heterodyne instrument is configured with this component.

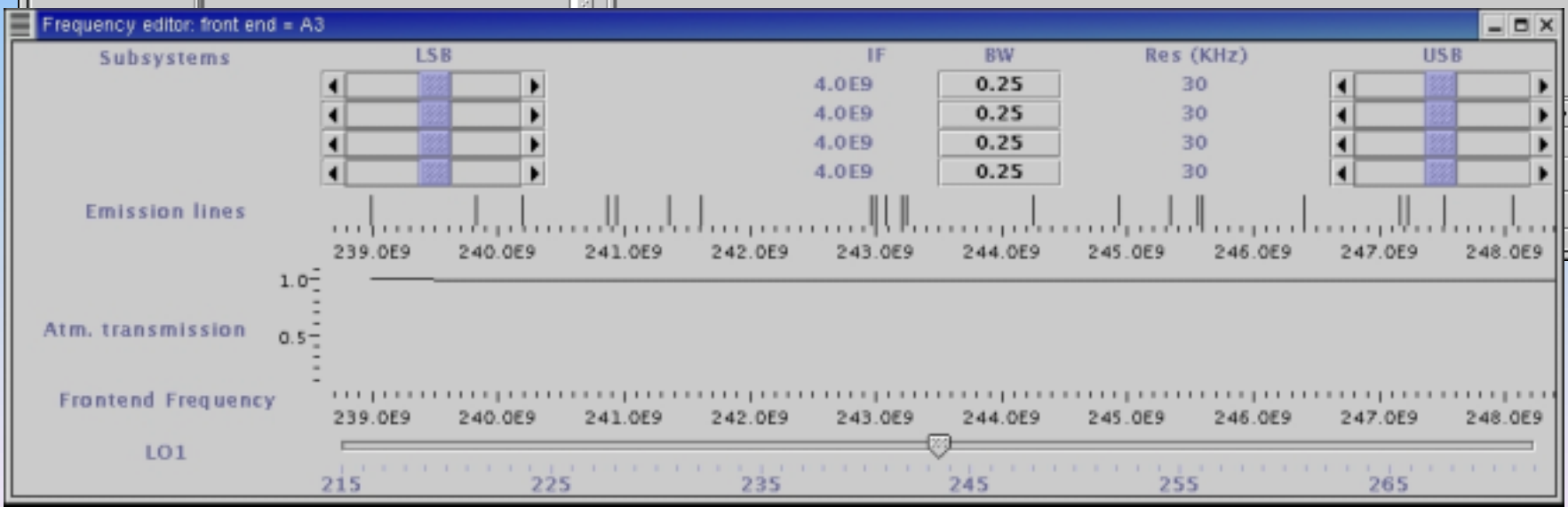
Choose Front End **A3** **ssb** **4-system** Overlap (MHz) 1.3

Low Limit (GHz) **215** High Limit (GHz) **272** Velocity (Km/s) 50.0

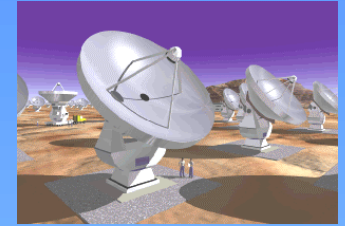
usb **CN, v = 0, 1** **2 0 2 1 - 1 0 2 1** **0.0000**

CO **2 - 1** **0.0000**

Show Side Band Display



Issues and Risks



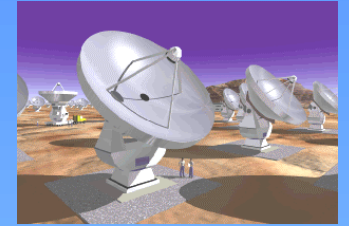
- **User-acceptance: System heavy on user-interaction. Mitigation: prototype, beta testers**
- **Specification creep: This type of system always suffers spec. creep. Mitigation: As above, also strong control of new requirements, beta testers again.**
- **Incomplete and vague requirements:**
 - **Meaning of “interactive observing”**
 - **Lack of full operational concept (e.g. How will Phase I & II interact?. Need for “referee’s tool”. Can user recover submitted proposals/programs? Is there a cradle to grave tracking?)**

Mitigation: pressure to finalise requirements, keep flexible (plan for late requirements)

Program Lifecycle



- Potential ALMA user creates Phase I program
- Submit to Observatory/Regional Data Centre (How decide?)
- Referees/TAC review program. (How do they get it?)
- TAC Approves (some of) program. (How is this signified? Do they modify the program with the OT/another tool?)
- User retrieves (modified, approved) Phase I program
- User completes Phase II information. (May be very little or nothing? May need to create Scheduling Blocks at least)
- User submits Phase II.
- Need to ensure the SBs only implement what is approved.
- (...)
- User is notified of SB execution/completion (Email?)
- Now has access to data. (Web?)



The OT: Everybody has an opinion as to what it is