

# ATNF Operations

ATUC 1 May 2007

# Decadal Plan

*“Continued operational support for existing ATNF telescopes (Parkes, Mopra and Compact Array) is seen as important throughout the next decade. Nevertheless, over this period, resources from these telescopes will increasingly have to be reprioritised into the development and operation of infrastructure on the roadmap to the SKA if Australia is to maintain its world-leading position in radio astronomy. This will ultimately restrict the range of operational modes offered by the Compact Array and Parkes to a smaller number of areas where they can still offer world-class performance by the end of the decade (2015).”*

# Developments and challenges

- CABB
- miriad
- Addition of the 7mm band
- Spacecraft tracking with the ATCA
- New 13mm receiver for Parkes
- Final version of the Digital Filter Bank at Parkes
- Remote operation of ATNF telescopes
- eVLBI

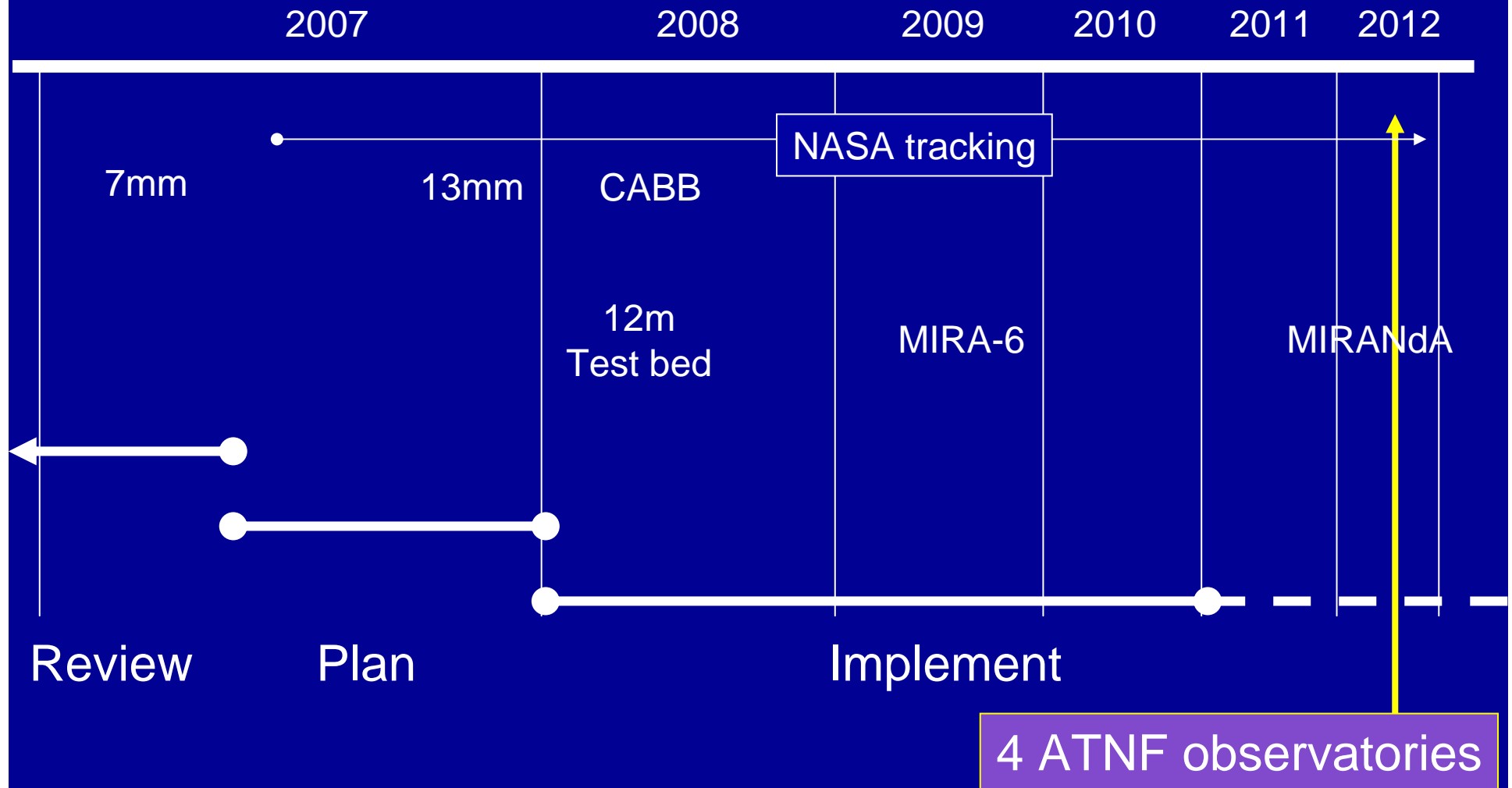
# ATNF 2012



# ATNF 2012



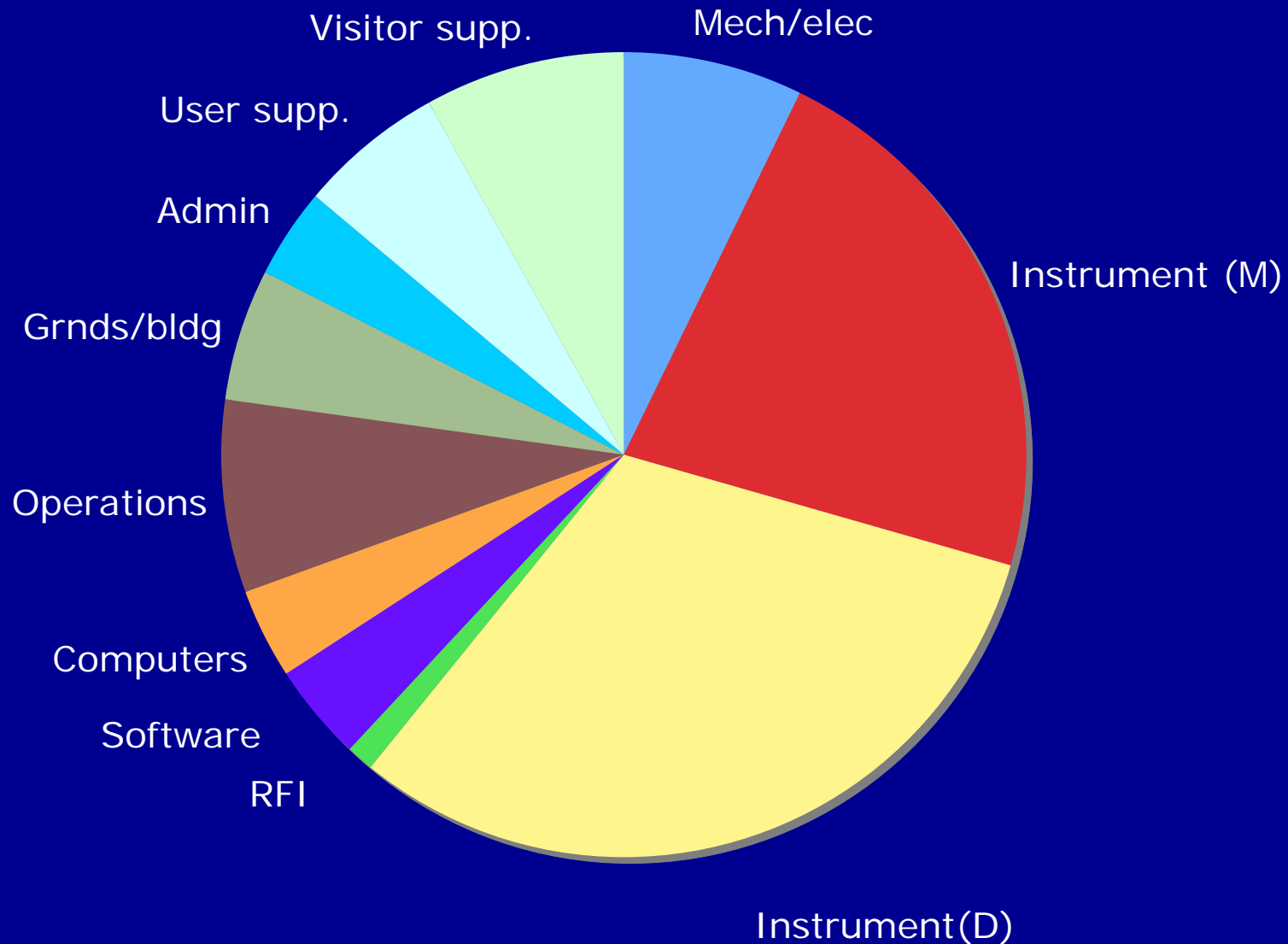
# Operations 2007-2012



# Operations: distribution of activities

<b>Staffing</b>	<b>Parkes</b>		<b>ATCA</b>		<b>Mopra</b>	<b>LBA</b>	<b>Tid'billa</b>	<b>Totals</b>
Mechanical/electrical	1.9	1.7	3.1	3.1	0.5			5.4
Instrumentation (M)	6.5	4.9	8.5	6.9	1.3	0.2		16.4
Instrumentation (D)	3.5	0.5	19.6	0.4	0.0	0.2		23.3
Software	1.2	0.5	1.4	1.2	0.1			2.8
Computing facility	1.3	1.2	1.0	0.9	0.3		0.1	2.7
Operations	2.1	2.0	2.4	2.2	0.6	0.2	0.4	5.8
User support	1.5	1.5	1.7	1.0	0.9	0.3	0.1	4.5
RFI protection	0.6	0.5	0.3	0.2	0.0			0.9
Visitor support	2.3	2.3	3.0	3.0	0.6			5.9
Grounds/buildings	1.7	1.7	2.0	2.0	0.3			4.0
Administration	1.3	1.3	0.9	0.9	0.3	0.1		2.5
<b>Total</b>	<b>23.9</b>	<b>18.0</b>	<b>43.7</b>	<b>21.6</b>	<b>4.7</b>	<b>1.0</b>	<b>0.6</b>	<b>74.0</b>
Projects per year	42		125		23	11	9	
Sessions per year	219		212		45			
Lodge guests	180		297		18			
Bed-nights	1892		3266		272			

# Operations: distribution of activities





# MIRANdA operation

- Sited at Mileura (Boolarady), WA
- Data processing centre remote from telescope (Geraldton or Perth)
- No user/operator
- Operations could be conducted from somewhere else.
- "FRUs" – field replaceable units; remotely diagnosable
- Small (1-3) staff on Boolardy site
- Maintenance/repair team visit from Geraldton (400km) or Perth (800km).

# Questions

- What design features are required in MIRANdA to allow this operational model?
- Could any of the features of MIRANdA be used at Parkes (Mopra, Narrabri) to allow smaller on-site presence?
- Would fewer, larger groups be beneficial: eg all online software developers/maintainers at one site?
- Of our current functions, which do not require full time presence at the observatory?

# ATCA failure & repair statistics

1	2	3	4	5	6
	N	N >20 min	Mean (min)	Std dev. (min)	MTBF (days)
ACCs	33	6	15	18.5	5.5
Operations	17	9	53	58	11
Computing	17	9	42	49	11
Operator	15	8	26	16	12
Receiver	6	6	1472	3506	31
Correlator	6	4	62	63	31
Cryogenics	4	3	335	508	46
Drives	4	4	202	235	46
Totals	102	49	137	858.1	1.8

# Conclusions

- The operation of all four ATNF observatories should be considered together; operating costs must be minimised for all, including MIRANdA.
- At this early stage in the design of MIRANdA, we are well placed to include features that minimise operating cost. Those operating our current facilities have a broad and useful experience that should benefit MIRANdA design.
- There may be opportunities for economy in the operation of Parkes, Mopra and the ATCA if aspects of the operations teams at Parkes and Narrabri are consolidated. This, with a linking of all telescope schedules, could help cope with the peak demands on these teams, and yield some economies of scale in some of the sub-groups.
- There must be a cost to changing our operations. The hope is that this can be restricted to a loss in scheduling flexibility and a less efficient use of telescope time for astronomy (including an increase in "down-time"), and perhaps a financial cost for improving or adding infrastructure to support the new model.
- There may also be implications for astronomer access to the telescopes. The level of remote observing possible, the location of observing "control rooms" and operations support staff will all be questioned in the process of setting the new model.