

Scientific Commissioning Plan: data flow view

Topic	Area	Start date	End date	FTEs/FY10	FTEs/FY11	FTEs/FY12	FTEs/FY13	NRAO lead	Other NRAO-NM	RSRO contributors/FY10	RSRO contributors/FY11
OSRO commissioning	Standard OSRO observing modes	2009 Q3	2010 Q3	2	0	0	0	Van Moorsel	McMullin, Ott, Rupen		
Observing with wide bandwidths	Test OPT for primary frequencies (L/C/K/Ka/Q) and VLA-X	2009 Q4	2009 Q4	0.1	0	0	0	Sjouwerman	All	All	
Observing with wide bandwidths	Low frequency (L/S/C) observing methodology (incl. polcal for Stokes I); 8-bit samplers	2009 Q4	2009 Q4	0.1	0	0	0	Momjian	Perley, Goss, Owen	van Gorkom	
Observing with wide bandwidths	Complex gain stability (L/C/K/Ka/Q)	2009 Q4	2010 Q1	0.25	0	0	0	Perley	Momjian, Goss, Sjouwerman, Chandler, Owen, Carilli	van Gorkom, Aravena, Brogan, Hunter	
Observing with wide bandwidths	Bandpass stability (L/C/K/Ka/Q)	2009 Q4	2010 Q1	0.25	0	0	0	Perley	Momjian, Goss, Sjouwerman, Chandler, Owen, Carilli	van Gorkom, Aravena, Brogan, Hunter	
Observing with wide bandwidths	Reference pointing	2010 Q1	2010 Q1	0.25	0	0	0	Perley	Claussen, Sjouwerman, Chandler, Owen, Carilli	Aravena, Brogan, Hunter	
Observing with wide bandwidths	Planetary observing set-up with OPT	2010 Q1	2010 Q1	0.1	0	0	0	Butler	Hesman		
Observing with wide bandwidths	Spectral line set-ups and calibration procedures	2010 Q1	2010 Q2	0.5	0	0	0	Ott	Goss, Momjian, Chandler, Sjouwerman, Wrobel, Carilli, Dickman	Aravena, Brogan, Chomiuk, Hunter, van Gorkom	
Observing with wide bandwidths	High frequency (K/Ka/Q) observing methodology (incl. polcal for Stokes I); 8/3-bit samplers	2010 Q1	2010 Q4	0.25	0.25	0	0	Sjouwerman	Chandler, Claussen, Owen, Carilli, Marvil, Pannella, Strazzullo	Aravena, Brogan, Hunter, Leroy, Perez	Leroy, Corder, Linz
Observing with wide bandwidths	Observing recommendations documented on the web (L/C/K/Ka/Q)	2010 Q1	2011 Q2	0.25	0.25	0	0	McMullin	All		Greaves
Observing with wide bandwidths	Calibrator survey	2010 Q2	2010 Q2	0.25	0	0	0	Mioduszewski	Hesman, Sjouwerman, Owen		
Observing with wide bandwidths	Polarization stability (L/C/K/Ka/Q)	2010 Q2	2010 Q3	0.25	0	0	0	Myers	Perley, Dhawan, Moellenbrock, Owen	Green, Heesen, Taylor	
Observing with wide bandwidths	VLBI observing set-up (SCHED/OPT)	2010 Q2	2010 Q3	0.25	0	0	0	Walker	Brisken, Romney	Deller	
Observing with wide bandwidths	Doppler tracking	2010 Q3	2010 Q3	0.25	0	0	0	Ott	Goss, Momjian, Chandler, Sjouwerman, Wrobel, Carilli	Chomiuk, van Gorkom	
Observing with wide bandwidths	Spectral smoothing	2010 Q3	2010 Q3	0.25	0	0	0	Ott	Goss, Momjian, Chandler, Sjouwerman, Wrobel, Carilli	Chomiuk, van Gorkom	
Observing with wide bandwidths	Special calibration observations for full-field polarization	2010 Q3	2010 Q3	0.25	0	0	0	Myers	Perley, Dhawan, Moellenbrock, Owen, Bhatnagar	Green, Heesen, Taylor	
Observing with wide bandwidths	Pulsar observing set-up with OPT	2010 Q3	2010 Q3	0.25	0	0	0	Brisken	Frail		
Observing with wide bandwidths	Mid frequency (X/Ku) observing methodology (incl. polcal for Stokes I); 3-bit samplers	2010 Q3	2011 Q2	0.1	0.1	0	0	Dhawan	Rupen, Momjian, Frail, Owen	Lazio, Heesen, Leroy, Taylor	Leroy
Observing with wide bandwidths	Mosaicing with multiple single pointings using OPT	2010 Q4	2010 Q4	0	0.1	0	0	Ott	Dickman	Miller-Jones, Chomiuk, Taylor	
Observing with wide bandwidths	Complex gain stability (S/X/Ku)	2010 Q4	2011 Q1	0	0.1	0	0	Perley	Dhawan, Momjian, Owen		Leroy
Observing with wide bandwidths	Bandpass stability (S/X/Ku)	2010 Q4	2011 Q1	0	0.1	0	0	Perley	Dhawan, Momjian, Owen, Goss		Leroy
Observing with wide bandwidths	Service calibration for flux/pol leakage (L/C/K/Ka/Q)	2010 Q4	2011 Q1	0	0.25	0	0	Myers	Dhawan, Moellenbrock, Greisen, Owen, Bhatnagar		
Observing with wide bandwidths	Polarization stability (S/X/Ku)	2010 Q4	2011 Q1	0	0.1	0	0	Myers	Perley, Dhawan, Moellenbrock, Owen		
Observing with wide bandwidths	Solar observing set-up with OPT	2011 Q1	2011 Q1	0	0.1	0	0	Butler	Bastian		
Observing with wide bandwidths	Observing recommendations documented on the web (S/X/Ku)	2011 Q1	2012 Q2	0	0.1	0.1	0	McMullin			
Observing with wide bandwidths	OTF mosaicing set-up using OPT	2011 Q3	2011 Q3	0	0.1	0	0	Ott			
Observing with wide bandwidths	Service calibration for flux/pol leakage (S/X/Ku)	2011 Q4	2012 Q1	0	0	0.1	0	Myers			
Observing with wide bandwidths	Spectral line IDs in OPT	2011 Q4	2012 Q3	0	0	0.25	0	Ott			
Observing with wide bandwidths	Incorporate observing methodologies into observing procedures in OPT	2012 Q3	2012 Q4	0	0	0.25	0.25	Sjouwerman			
Scheduling heuristics	Target of opportunity	2010 Q1	2010 Q1	0.1	0	0	0	Frail	Wrobel, Claussen	Chomiuk	
Scheduling heuristics	Mid-frequency (X/Ku) scheduling heuristics	2010 Q2	2010 Q2	0.1	0	0	0	Frail	Dhawan, Wrobel	Miller-Jones	
Scheduling heuristics	Low-frequency (L/S/C) scheduling heuristics (solar activity, ionosphere, RFI)	2010 Q3	2010 Q3	0.25	0	0	0	Frail	Perley, Momjian, Goss, Owen, Wrobel	Lazio, Heesen, van Gorkom	
Scheduling heuristics	High-frequency (K/Ka/Q) scheduling heuristics (weather, including predictions)	2010 Q3	2010 Q3	0.1	0	0	0	Frail	Sjouwerman, Perley, Carilli, Wrobel	Perez, Leroy	
Scheduling heuristics	Date-restricted observations	2010 Q4	2010 Q4	0	0.1	0	0	Frail	Wrobel, Claussen		
Scheduling heuristics	Long vs. short scheduling blocks	2010 Q4	2010 Q4	0	0.1	0	0	Frail	Goss, Owen, Momjian, Claussen		Leroy, Linz
Scheduling heuristics	Calibration SBS	2010 Q4	2011 Q1	0	0.1	0	0	Myers	Momjian, Dhawan, Sjouwerman, Owen		Leroy, Corder, Linz
Data distribution	Archive functionality	2010 Q1	2011 Q1	0.25	0.1	0	0	Sjouwerman	Butler, Benson	All	
Data distribution	Data distribution via alternative media	2010 Q1	2011 Q1	0.25	0.1	0	0	van Moorsel	P. Perley, Data Analysts		
Flagging	Flagging algorithm development	2010 Q2	2012 Q3	0.5	0.5	0.5	0	Owen	ARDG		
Flagging	Low-frequency (L/S/C) flagging	2010 Q2	2012 Q4	0.25	0.25	0.1	0.1	Owen	Perley, Momjian, Goss	van Gorkom, Lazio, Heesen	
Flagging	RFI excision/subtraction (all frequencies)	2010 Q2	2012 Q4	0.25	0.5	0.5	0.25	Owen	Kogan, Goss, Cotton, ARDG	van Gorkom, Lazio, Heesen	
Flagging	Recommendations documented	2010 Q2	2012 Q4	0.25	0.25	0.1	0.1	McMullin	All		Greaves
Flagging	High-frequency (K/Ka/Q) flagging (incl. poor atmospheric phase stability)	2010 Q3	2011 Q2	0.25	0.25	0	0	Sjouwerman	Claussen, Chandler, Owen, Carilli	Perez, Leroy	Corder
Flagging	Mid-frequency (X/Ku) flagging	2010 Q4	2012 Q4	0	0.25	0.1	0.1	Dhawan	Rupen, Momjian, Frail, Owen		Leroy
Flagging	Online RFI flagging	2012 Q3	2012 Q4	0	0	0.5	0.5	Rupen			
External calibrations	Delays/fringe fitting (L/C/K/Ka/Q)	2010 Q2	2010 Q2	0.25	0	0	0	Dhawan	Perley, Momjian, Goss, Owen, Sjouwerman, Claussen, Chandler, Carilli	Aravena, Brogan, Hunter, van Gorkom	
External calibrations	Bandpass (L/C/K/Ka/Q)	2010 Q2	2010 Q2	0.25	0	0	0	Goss	Ott, Momjian, Chandler, Sjouwerman, Wrobel, Carilli	Aravena, van Gorkom, Brogan, Hunter, Chomiuk	
External calibrations	Polarization calibration (L/C/K/Ka/Q)	2010 Q2	2010 Q2	0.25	0	0	0	Myers	Perley, Dhawan, Moellenbrock, Owen, Greisen, Bhatnagar	Green	
External calibrations	Gain curves	2010 Q2	2010 Q3	0.25	0	0	0	Perley	Momjian, Hesman, Owen		
External calibrations	Tipping scans	2010 Q2	2010 Q3	0.25	0	0	0	Perley	Mioduszewski, Owen, Butler, Sjouwerman		
External calibrations	Flux calibrator models (L/C/K/Ka/Q)	2010 Q2	2012 Q4	0.25	0.25	0.1	0.1	Mioduszewski	Greisen, Moellenbrock	Miller-Jones	
External calibrations	Complex gains (L/S/C)	2010 Q3	2010 Q3	0.25	0	0	0	Momjian	Perley, Goss, Owen	Lazio, Heesen, Leroy, Taylor	
External calibrations	Complex gains (weak calibrator sources) (K/Ka/Q)	2010 Q3	2010 Q3	0.5	0	0	0	Claussen	Sjouwerman, Chandler, Owen, Carilli	Perez, Leroy	
External calibrations	Delays/fringe fitting (S/X/Ku)	2010 Q4	2010 Q4	0	0.25	0	0	Dhawan	Rupen, Momjian, Frail, Owen		Leroy
External calibrations	Bandpass (S/X/Ku)	2010 Q4	2010 Q4	0	0.25	0	0	Dhawan	Rupen, Momjian, Frail, Owen, Goss		Leroy
External calibrations	Polarization calibration (S/X/Ku)	2010 Q4	2010 Q4	0	0.25	0	0	Myers	Perley, Dhawan, Moellenbrock, Owen, Greisen, Bhatnagar		
External calibrations	Complex gains (X/Ku)	2011 Q1	2011 Q1	0	0.25	0	0	Dhawan			
External calibrations	Calibration pipeline heuristics (L/C/K/Ka/Q)	2011 Q1	2011 Q1	0	0.25	0	0	Sjouwerman			
External calibrations	Calibration recommendations documented, incorporated into pipeline (L/C/K/Ka/Q)	2011 Q1	2011 Q1	0	0.25	0	0	McMullin	Sjouwerman		
External calibrations	Flux calibrator models (S/X/Ku)	2011 Q1	2012 Q4	0	0.25	0.1	0.1	Mioduszewski	Greisen, Moellenbrock		
External calibrations	Calibration pipeline heuristics (S/X/Ku)	2011 Q3	2011 Q3	0	0.1	0	0	Sjouwerman	Dhawan		
External calibrations	Calibration recommendations documented, incorporated into pipeline (S/X/Ku)	2011 Q3	2011 Q3	0	0.1	0	0	McMullin	Sjouwerman		

Special calibrations	VLBI calibration transfer	2010 Q3	2010 Q3	0.25	0	0	0	Walker	Brisken, Romney		
Special calibrations	Sub-band calibration transfer	2011 Q1	2011 Q1	0	0.25	0	0	Rupen			
Special calibrations	Pulsar calibration	2011 Q2	2011 Q2	0	0.25	0	0	Brisken	Frail		
Special calibrations	Solar calibration	2011 Q2	2011 Q2	0	0.25	0	0	Perley	Butler		
Self-calibration topics	Pointing	2010 Q2	2011 Q4	0.5	0.5	0.1	0	ARDG			
Self-calibration topics	Full-field amplitude and phase	2010 Q3	2012 Q3	0.25	0.5	0.5	0	ARDG			
Self-calibration topics	Instrumental polarization calibration	2011 Q1	2011 Q1	0	0.25	0	0	ARDG			
Correlator/observing modes	Identical sub-bands	2010 Q1	2010 Q1	0.1	0	0	0	Rupen	Momjian, Dhawan, Sjouwerman, Goss	Chomiuk	
Correlator/observing modes	Planetary observing	2010 Q1	2010 Q1	0.25	0	0	0	Butler	Hesman		
Correlator/observing modes	Trading sub-bands for channels	2010 Q2	2010 Q2	0.25	0	0	0	Rupen	Ott, Goss, Momjian, Chandler, Sjouwerman, Wrobel, Carilli	Aravena, Brogan, Hunter, Chomiuk, van Gorkom	
Correlator/observing modes	Phased array for VLBI	2010 Q2	2010 Q2	0.25	0	0	0	Brisken	Walker, Romney	Deller	
Correlator/observing modes	Phased array for pulsars	2010 Q2	2010 Q2	0.1	0	0	0	Brisken	Frail, Rupen	Deller	
Correlator/observing modes	Recirculation	2010 Q3	2010 Q3	0.25	0	0	0	Goss	Momjian, Ott, Chandler, Sjouwerman		
Correlator/observing modes	Subarrays	2010 Q3	2010 Q3	0.25	0	0	0	Rupen	Frail		
Correlator/observing modes	Single-dish VLBI	2010 Q3	2010 Q3	0.1	0	0	0	Brisken	Walker, Romney		
Correlator/observing modes	Independently tunable sub-bands	2010 Q4	2010 Q4	0	0.25	0	0	Rupen	Ott, Goss, Momjian, Chandler, Sjouwerman		
Correlator/observing modes	Astrometry (requires A-config)	2011 Q1	2011 Q1	0	0.25	0	0	Brisken	Mioduszewski, Fomalont, Rupen, Dhawan		
Correlator/observing modes	Solar (requires solar cal hardware)	2011 Q1	2011 Q1	0	0.25	0	0	Perley	Bastian		
Correlator/observing modes	Pulsar gating and binning	2011 Q2	2011 Q2	0	0.25	0	0	Brisken	Frail, Rupen		
Correlator/observing modes	OTF mosaicing	2011 Q3	2011 Q3	0	0.25	0	0	Ott		Taylor	
Correlator/observing modes	Burst mode	2011 Q3	2011 Q3	0	0.25	0	0	Frail			
Correlator/observing modes	Radar mode	2011 Q3	2011 Q3	0	0.25	0	0	Rupen			
Correlator/observing modes	General correlator resource allocation	2011 Q4	2011 Q4	0	0	0.25	0	Rupen			
Correlator/observing modes	Van Vleck corrections	2011 Q4	2011 Q4	0	0	0.25	0	Perley	Dhawan		
Correlator/observing modes	7-bit correlation	2011 Q4	2011 Q4	0	0	0.25	0	Perley			
Correlator/observing modes	Fast switching between correlator set-ups	2011 Q4	2011 Q4	0	0	0.25	0	Rupen			
Correlator/observing modes	Very fast dumps	2011 Q4	2011 Q4	0	0	0.25	0	Rupen			
Correlator/observing modes	Correlation of external antennas (PT, LWA, etc.)	2012 Q1	2012 Q4	0	0	0.25	0.1	Rupen			
Correlator/observing modes	Mixing of 3-bit and 8-bit samplers	2012 Q1	2012 Q4	0	0	0.25	0.1	Rupen			
Correlator/observing modes	More CBE processing	2012 Q1	2012 Q4	0	0	0.25	0.1	Rupen			
Correlator/observing modes	Multiple phase/delay tracking centers	2012 Q1	2012 Q4	0	0	0.25	0.1	Rupen			
Correlator/observing modes	Output to user instruments	2012 Q1	2012 Q4	0	0	0.25	0.1	Rupen			
Imaging topics	Narrow-field, wide-band imaging of unconfused fields	2009 Q4	2010 Q4	0.25	0.1	0	0	Owen	Chandler, Carilli	Lazio, Perez, Leroy, Aravena	
Imaging topics	Narrow-field, wide-band imaging of confused fields	2010 Q1	2010 Q4	0.5	0.25	0	0	Owen	Bhatnagar, Rao, Carilli	Leroy, Brogan, Hunter, Aravena, Heesen	
Imaging topics	Full field, narrow-band polarization imaging	2010 Q2	2011 Q4	0.5	0.25	0.1	0	Owen	Bhatnagar, Rao, Cotton	Taylor, Green, Heesen	
Imaging topics	Imaging of ~FWHM of primary beam	2010 Q2	2011 Q4	0.5	0.5	0.1	0	Owen	Bhatnagar, Rao, Goss	van Gorkom, Green, Heesen, Taylor	
Imaging topics	Mosaicing and combination of EVLA+GBT	2010 Q3	2011 Q4	0.25	0.5	0.25	0	Ott	Golap, Goss, Dickman	Chomiuk, Taylor	
Imaging topics	Corrections for ionospheric effects	2010 Q3	2012 Q4	0.25	0.25	0.5	0.25	Cotton	Intema, Perley	Lazio, Heesen, van Gorkom	
Imaging topics	Deconvolution algorithms	2010 Q3	2012 Q4	0.1	0.5	0.25	0.1	Owen			
Imaging topics	Full field, full sensitivity Stokes I imaging	2010 Q3	2013 Q2	0.1	0.5	0.5	0.5	Owen	Bhatnagar, Rao	Green, Heesen, Lazio, Taylor, Leroy	
Imaging topics	Pulsar "bin cubes"	2011 Q1	2011 Q1	0	0.25	0	0	Brisken	CASA developers		
Imaging topics	Narrow-field, wide-band polarization imaging	2011 Q4	2012 Q4	0	0	0.5	0.25	Owen	Bhatnagar, Rao		
Imaging topics	High dynamic range (10^7) imaging	2012 Q2	2012 Q4	0	0	0.5	0.25	Bhatnagar			
Imaging topics	Full field, wide-band polarization imaging	2012 Q4	2012 Q4	0	0	0	0.5	Owen	Bhatnagar, Rao		
Data analysis	RM synthesis imaging	2010 Q1	2011 Q4	0.25	0.5	0.1	0	Owen	Kogan, Perley, Bhatnagar	Green, Heesen, Taylor	
Data analysis	3D source cataloging, weak feature identification	2010 Q3	2012 Q1	0.1	0.5	0.5	0	Owen	Goss, Claussen, PSU		
Data analysis	RRL stacking + other special analysis tools	2010 Q3	2012 Q3	0.1	0.5	0.5	0	Greisen	Goss	Leroy	
Data analysis	Automated spectral line identification using Splatalogue	2011 Q3	2012 Q4	0	0.1	0.5	0.1	Remijan/NAASC	Chandler, Goss, Claussen		
Data analysis	3D visualization	2012 Q1	2012 Q4	0	0	0.5	0.25	CASA	PSU		
High performance computing	CASA multi-thread capability	2010 Q2	2010 Q2	0.1	0	0	0	Golap	Bhatnagar		
High performance computing	CASA cluster testing	2010 Q2	2010 Q3	0.1	0	0	0	Golap	Bhatnagar		
High performance computing	CASA queue job submission heuristics	2010 Q3	2010 Q3	0.1	0	0	0	Owen			
High performance computing	Use procedures commissioning	2010 Q3	2012 Q1	0.25	0.25	0.25	0	Owen			
Low frequency (<1 GHz) bands	Receiver tests	2010 Q3	2012 Q1	0.25	0.25	0.25	0	Durand	Owen, Perley	Lazio	
Low frequency (<1 GHz) bands	Feed tests	2010 Q3	2012 Q1	0.1	0.25	0.25	0	Durand	Owen, Perley		
Low frequency (<1 GHz) bands	Calibration procedures	2010 Q3	2012 Q1	0.1	0.25	0.25	0	Owen	Cotton, Intema, Perley	Lazio	
Low frequency (<1 GHz) bands	Management and coordination	2010 Q3	2012 Q1	0.25	0.25	0.25	0	Owen	Durand, Kutz		
General	Management	2009 Q4	2012 Q3	1	1	1	0	Chandler	McMullin		
	Totals			18.4	16.95	12.85	4.2				
	Algorithms only			4.15	6.45	5.9	2.2				