

# MA008 Correlation Report

## General

- Session info: <http://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/>
- Station feedback: [http://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/sessions/apr17/feedback\\_apr17.asc](http://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/sessions/apr17/feedback_apr17.asc)
- ALMA QA2: 2016.1.01216.V
- This experiment has ALMA with 32x62.5MHz, VLBA with 2x128MHz channels, and most of the EVN with 1x512MHz channels.
- Two EVN stations (Yebeas, Pico Veleta) observed in an incorrect backend mode, with a 32 MHz polyphase filterbank. Due to the issue at Yebeas and Pico, three correlations were performed:
  - a) standard ALMA correlation setup (58 MHz bands)
  - b) narrower band correlation setup (32 MHz bands)
  - c) emulated standard ALMA correlation setup (58 MHz bands), accomplished via a mixed-bandwidth correlation with additional postprocessing of all baselines to Yebeas and Pico Veleta to reconstruct 58 MHz bands
- The FITS files are delivered in two variants due to the problems with Pico and Yebeas that were outlined above:
  - **ma008.fits**: Standard correlation (a). Although visibility data contains Pico and Yebeas .
  - **ma008\_merged.fits**: Special correlation with post-processing (c). The Yebeas and Pico 32 MHz bands were correlated as narrower bands that covered ALMA target 58 MHz bands, and these narrower bands were then combined post-correlation to form the desired 58MHz output bands. Notes: Scan No0030 is too short. It was only partially processed earlier at correlation time. Unfortunately this scan could not be re-correlated due to a computing cluster issue that caused widespread data loss of station recordings from multiple experiments. Apart of scan No0030 the other scans are complete.

## Status

What	Date
Correlation of 58 MHz sub-bands finished	9.8.2017
Conversion to HOPS	9.8.2017
Fourfit fringe fitting	9.8.2017
Correlation of 32 MHz and mixed sub-bands finished	20.8.2017
Conversion to FITS with -u (union) option	4.9.2017
PCList check	4.9.2017
aedit plots, alist v6 residual rate and delay plots	4.9.2017
re-run polconvert with latest QA2 solutions (pc2)	9.11.2017
Material sent to PI	(pending final ALMA QA2 solutions)
re-run with fixed difx2difx.py converter (fix autocorr glitches), re-run latest polconvert with final QA2 solutions	14.1.2018
package for PI	18.1.2018

## Fringes

Station	Code	Fringes	Plots	Comments
AA	A	yes		
Br	b	yes		
Fd	f	yes		
Kp	k	yes		
La	l	yes		
Mk	m	no		wide fringe search but no fringes found
NI	n	yes		
Ov	o	no		
Pt	p	poor		
Ef	E	yes		Effelsberg DBBC2
Eb	B	yes		Effelsberg RDBE
On	X	yes		
Ys	Y	yes		polyphase FB mode, fringes in 32 MHz and reconstructed 58 MHz correlations
Pv	P	yes		polyphase FB mode, fringes in 32 MHz and reconstructed 58 MHz correlations
Mh	Z	no		faulty configuration

Fringe plots: 58 MHz correlation (c) plots, plotted with Effelsberg as reference ([No0028 Effelsberg PDF](#)), Pico ([No0011 Pico PDF](#)), ALMA ([No0028 ALMA PDF](#)), VLBA Fd ([No0060 VLBA-FD PDF](#))

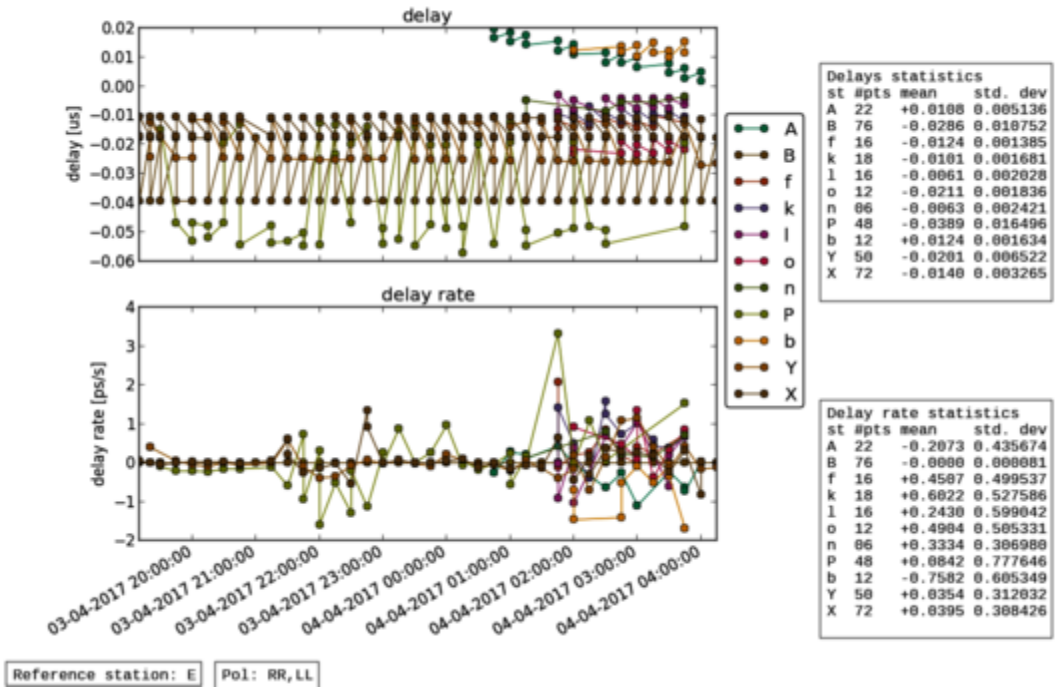
## Notes

- In case (c) the additional processing consisted of, first, correlation with 58 MHz bands and several narrower bands that fitted the Pico/Yebes recorded bands (e.g., 32 MHz, 24 MHz, 2 MHz and similar), secondly, after correlation passing the visibility data through a post-processing script to form 58 MHz bands on the affected baselines using the narrow bands (i.e., combining visibilities in frequency domain from 32 + 24 + 2 MHz bands), thirdly, spectrally averaging inside the 58 MHz bands from 3712 channels per band to the final goal of 116 channels per band that matches the originally intended correlation mode.
- Yebes began recording 20 seconds late in every scan

## Post-Correlation checks

### Residuals

reference E (Effelsberg), pols RR and LL



### FITS completeness (plist)

Legend:

- o: station is included in the FITS-file (data is complete)
- x: expected station is missing in the FITS-file
- number: percentage of job time in the FITS-file compared to expected time.

	EF	EB	ON	YS	PV	MH	AA	NL	FD	PT	LA	KP	OV	BR	MK
ma008_01	No0001	3C273	3mm_ddc	o	o	o	o	o	93	.	.	.	.	.	.
ma008_02	No0002	3C273	3mm_ddc	o	o	o	93	o	93	.	.	.	.	.	.
ma008_03	No0003	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.
ma008_04	No0004	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.
ma008_05	No0005	3C273	3mm_ddc	o	o	51	96	o	96	.	.	.	.	.	.
ma008_06	No0006	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.
ma008_07	No0007	3C273	3mm_ddc	o	o	o	96	o	40	.	.	.	.	.	.
ma008_08	No0008	3C273	3mm_ddc	o	o	o	95	o	95	.	.	.	.	.	.
ma008_09	No0009	3C279	3mm_ddc	o	o	o	95	o	95	.	.	.	.	.	.
ma008_10	No0010	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.
ma008_11	No0011	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.
ma008_12	No0012	3C273	3mm_ddc	o	o	o	o	o	96	.	.	.	.	.	.
ma008_13	No0013	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.
ma008_14	No0014	3C273	3mm_ddc	o	o	o	95	o	95	.	.	.	.	.	.
ma008_15	No0015	3C279	3mm_ddc	o	o	o	95	o	95	.	.	.	.	.	.
ma008_16	No0016	3C273	3mm_ddc	o	o	o	o	o	96	.	.	.	.	.	.
ma008_17	No0017	3C273	3mm_ddc	o	o	o	25	o	96	.	.	.	.	.	.
ma008_18	No0018	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.
ma008_19	No0019	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.

ma008_20	No0020	3C273	3mm_ddc	o	o	o	95	o	95	.	.	.	.	.	.	.	.	.	.
ma008_21	No0021	3C279	3mm_ddc	o	o	o	o	o	o	.	.	.	.	.	.	.	.	.	.
ma008_22	No0022	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.	.	.	.	.
ma008_23	No0023	3C273	3mm_ddc	o	o	o	96	o	96	.	.	.	.	.	.	.	.	.	.
ma008_24	No0024	3C273	3mm_ddc	o	o	o	96	o	96	o	o	.	.	.	.	.	.	.	.
ma008_25	No0025	3C273	3mm_ddc	o	o	o	96	o	o	o	o	.	.	.	.	.	.	.	.
ma008_26	No0026	3C273	3mm_ddc	o	o	o	95	o	95	o	o	.	.	.	.	.	.	.	.
ma008_27	No0027	3C279	3mm_ddc	o	o	54	o	o	95	x	o	o	.	.	.	.	.	.	.
ma008_28	No0028	3C273	3mm_ddc	o	o	o	96	o	96	o	o	o	o	o	o	o	o	o	o
ma008_29	No0029	3C273	3mm_ddc	o	o	o	o	o	96	o	o	o	o	o	o	o	o	o	o
ma008_30	No0030	3C273	3mm_ddc	o	o	o	95	o	95	x	o	o	o	o	o	o	o	o	o
ma008_31	No0031	3C279	3mm_ddc	o	o	59	95	o	.	o	o	o	x	o	o	o	o	o	.
ma008_32	No0032	3C273	3mm_ddc	o	o	o	96	o	96	o	o	o	x	o	o	o	o	o	.
ma008_33	No0033	3C273	3mm_ddc	o	o	o	96	o	.	o	o	o	x	o	o	o	o	o	.
ma008_34	No0034	3C273	3mm_ddc	o	o	o	96	o	.	x	o	o	x	o	o	o	o	o	.
ma008_35	No0035	3C273	3mm_ddc	o	o	o	95	o	.	o	o	o	x	o	o	o	o	o	.
ma008_36	No0036	3C279	3mm_ddc	o	o	o	o	o	.	o	o	o	x	o	o	o	o	o	.
ma008_37	No0037	3C273	3mm_ddc	o	o	o	96	o	.	o	o	o	77	o	o	o	o	o	.
ma008_38	No0038	3C273	3mm_ddc	o	o	o	95	o	.	x	o	o	o	o	o	o	o	o	.
ma008_39	No0039	3C279	3mm_ddc	.	.	.	95	o	.	o	o	o	o	o	o	o	o	o	.
ma008_40	No0040	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_41	No0041	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_42	No0042	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_43	No0043	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_44	No0044	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_45	No0045	3C279	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_46	No0046	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_47	No0047	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_48	No0048	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_49	No0049	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_50	No0050	3C279	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_51	No0051	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_52	No0052	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_53	No0053	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_54	No0054	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_55	No0055	3C279	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_56	No0056	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_57	No0057	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_58	No0058	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_59	No0059	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_60	No0060	3C279	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_61	No0061	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_62	No0062	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_63	No0063	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_64	No0064	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_65	No0065	3C279	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_66	No0066	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_67	No0067	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_68	No0068	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o
ma008_69	No0069	3C273	3mm_ddc	.	.	.	.	.	.	o	o	o	o	o	o	o	o	o	o

ma008\_70 No0070 3C279 3mm\_ddc . . . . . o o o o o o o o  
ma008\_71 No0071 3C273 3mm\_ddc . . . . . o o o o o o o o  
ma008\_72 No0072 3C273 3mm\_ddc . . . . . o o o o o o o o  
ma008\_73 No0073 3C273 3mm\_ddc . . . . . o o o o o o o o