

# MG004 Correlation Report

## General information

- A part of [C181D](#)
- Targets: OJ287, 1055+018
- Session info: <http://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/>
- Station feedback: [http://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/sessions/apr18/feedback\\_apr18.asc](http://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/sessions/apr18/feedback_apr18.asc)
- GBT calibration info (Tsys files for download) and other related information for this session can be found here: <https://safe.nrao.edu/wiki/bin/view/GB/Observing/WbandVLBACal/C181>
- *Special processing* was applied to all data in order to correlate mismatching frequency setups of ALMA and other GMVA stations. See details [here](#).

## Current Status

Correlation finished, data **released** on 10/12/2018.

A **second** data release, with a problem, spotted in the original release, corrected, was made on 31/01/2019.

A **third** data release, rerunning PolConvert with the latest (25.06.2019) ALMA QA2 release, was made on 30/09/2019.

## Fringes

Station	Code	Fringes	Plots	Comments
Ef	B	yes	<p>Fringe overview (including all of C181D) of all baselines including Ef in LL (left for each baseline) and RR (right for each baseline). Legend: white - scheduled, but no data, blue - no fringe, red-green - fringes of different quality. D -- fourfit error, in this case due to mixing upper and lower subbands in the KVN compatibility mode, no real problem with the data.</p> <p>Scans 18-20, 24-26, 28-29, 31, 33, 35-36 are missing from all diagnostic plots due to a difx2mark4 error. They are present in the final correlation products.</p> <p><a href="#">c181d FRINGE RfAnt Ef LLRR AllSrc.pdf</a></p> <p>Examples of fourfit fringe plots:</p> <p><a href="#">c181d_No0038_1055+018_AB_LL.pdf</a>, <a href="#">c181d_No0038_1055+018_AB_LR.pdf</a>, <a href="#">c181d_No0038_1055+018_AB_RL.pdf</a>, <a href="#">c181d_No0038_1055+018_AB_RR.pdf</a></p> <p>Same for all antennas below unless otherwise noted.</p>	<p>in the plots Ef is "missing" all the baselines except to ALMA, GLT and KVN. This is due to a fourfit error, the baselines are missing only from some of the diagnostic plots, but are present in the final correlation products.</p>
On	X	yes	<p><a href="#">c181d FRINGE RfAnt On LLRR AllSrc.pdf</a></p> <p><a href="#">c181d_No0038_1055+018_AX_LL.pdf</a>, <a href="#">c181d_No0038_1055+018_AX_LR.pdf</a>, <a href="#">c181d_No0038_1055+018_AX_RL.pdf</a>, <a href="#">c181d_No0038_1055+018_AX_RR.pdf</a></p>	<p>in the plots On is "missing" all the baselines except to ALMA, GLT and KVN. This is due to a fourfit error, the baselines are</p>

Station	Code	Fringes	Plots	Comments
				<p>missing only from some of the diagnostic plots, but are present in the final correlation products.</p>
Ys	Y	yes	<p><a href="#">c181d FRINGE RfAnt Ys LLRR AllSrc.pdf</a>  <a href="#">c181d No0038 1055+018 AY LL.pdf</a>, <a href="#">c181d No0038 1055+018 AY LR.pdf</a>,  <a href="#">c181d No0038 1055+018 AY RL.pdf</a>, <a href="#">c181d No0038 1055+018 AY RR.pdf</a></p>	<p>As usual, Ys observed LCP only, but it was also recorded as fake RCP, that's why there are common Ys "right" to other antenna's left fringes.</p> <p>in the plots Ys is "missing" all the baselines except to ALMA, GLT and KVN. This is due to a fourfit error, the baselines are missing only from some of the diagnostic plots, but are present in the final correlation products.</p>
Mh	Z	yes	<p><a href="#">c181d FRINGE RfAnt Mh LLRR AllSrc.pdf</a>  <a href="#">c181d No0023 1055+018 AZ LL.pdf</a>, <a href="#">c181d No0023 1055+018 AZ LR.pdf</a>,  <a href="#">c181d No0023 1055+018 AZ RL.pdf</a>, <a href="#">c181d No0023 1055+018 AZ RR.pdf</a></p>	<p>in the plots Mh is "missing" all the baselines except to ALMA, GLT and KVN. This is due to a fourfit error, the baselines are missing only from some of the diagnostic plots, but are present in</p>

Station	Code	Fringes	Plots	Comments
				the final correlation products.
Pv	P	yes	<a href="#">c181d_FRINGE_RfAnt_Pv_LLRR_AllSrc.pdf</a> <a href="#">c181d_No0016_OJ287_AP_LL.pdf</a> , <a href="#">c181d_No0016_OJ287_AP_LR.pdf</a> , <a href="#">c181d_No0016_OJ287_AP_RL.pdf</a> , <a href="#">c181d_No0016_OJ287_AP_RR.pdf</a> <a href="#">c181d_No0016_OJ287_gP_LL.pdf</a> , <a href="#">c181d_No0016_OJ287_gP_LR.pdf</a> , <a href="#">c181d_No0016_OJ287_gP_RL.pdf</a> , <a href="#">c181d_No0016_OJ287_gP_RR.pdf</a>	in the plots Pv is "missing" all the baselines except to ALMA, GLT and KVN. This is due to a fourfit error, the baselines are missing only from some of the diagnostic plots, but are present in the final correlation products.
VLBA: Br	b	yes	<a href="#">c181d_FRINGE_RfAnt_Br_LLRR_AllSrc.pdf</a> <a href="#">c181d_No0039_OJ287_Ab_LL.pdf</a> , <a href="#">c181d_No0039_OJ287_Ab_LR.pdf</a> , <a href="#">c181d_No0039_OJ287_Ab_RL.pdf</a> , <a href="#">c181d_No0039_OJ287_Ab_RR.pdf</a>	Baselines to EVN stations are "missing" due to a fourfit error. They are present in the final correlation products.
VLBA: Fd	f	yes	<a href="#">c181d_FRINGE_RfAnt_Fd_LLRR_AllSrc.pdf</a> <a href="#">c181d_No0038_1055+018_Af_LL.pdf</a> , <a href="#">c181d_No0038_1055+018_Af_LR.pdf</a> , <a href="#">c181d_No0038_1055+018_Af_RL.pdf</a> , <a href="#">c181d_No0038_1055+018_Af_RR.pdf</a>	Baselines to EVN stations are "missing" due to a fourfit error. They are present in the final correlation products.
VLBA: Kp	k	yes	<a href="#">c181d_FRINGE_RfAnt_Kp_LLRR_AllSrc.pdf</a> <a href="#">c181d_No0038_1055+018_Ak_LL.pdf</a> , <a href="#">c181d_No0038_1055+018_Ak_LR.pdf</a> , <a href="#">c181d_No0038_1055+018_Ak_RL.pdf</a> , <a href="#">c181d_No0038_1055+018_Ak_RR.pdf</a>	Baselines to EVN stations are "missing" due to a fourfit error. They are present in the final correlation products.
VLBA: La	l	yes	<a href="#">c181d_FRINGE_RfAnt_La_LLRR_AllSrc.pdf</a> <a href="#">c181d_No0038_1055+018_Al_LL.pdf</a> , <a href="#">c181d_No0038_1055+018_Al_LR.pdf</a> , <a href="#">c181d_No0038_1055+018_Al_RL.pdf</a> , <a href="#">c181d_No0038_1055+018_Al_RR.pdf</a>	Baselines to EVN stations are "missing" due to a fourfit error. They are present in the

Station	Code	Fringes	Plots	Comments
				final correlation products.
VLBA: Mk	m	yes	<a href="#">c181d FRINGE RfAnt Mk LLRR AllSrc.pdf</a> <a href="#">c181d No0039 OJ287 Am LL.pdf</a> , <a href="#">c181d No0039 OJ287 Am LR.pdf</a> , <a href="#">c181d No0039 OJ287 Am RL.pdf</a> , <a href="#">c181d No0039 OJ287 Am RR.pdf</a>	<p>Baselines to EVN stations are "missing" due to a fourfit error. They are present in the final correlation products.</p> <p>Taken out for several scans because of USNO observing.</p> <p>General performance in c181d poor, with fringes mostly to ALMA.</p>
VLBA: Nl	n	yes	<a href="#">c181d FRINGE RfAnt Nl LLRR AllSrc.pdf</a> <a href="#">c181d No0038 1055+018 An LL.pdf</a> , <a href="#">c181d No0038 1055+018 An LR.pdf</a> , <a href="#">c181d No0038 1055+018 An RL.pdf</a> , <a href="#">c181d No0038 1055+018 An RR.pdf</a>	<p>Baselines to EVN stations are "missing" due to a fourfit error. They are present in the final correlation products.</p>
VLBA: Ov	o	yes	<a href="#">c181d FRINGE RfAnt Ov LLRR AllSrc.pdf</a> <a href="#">c181d No0038 1055+018 Ao LL.pdf</a> , no LR fringe, <a href="#">c181d No0038 1055+018 Ao RL.pdf</a> , <a href="#">c181d No0038 1055+018 Ao RR.pdf</a>	<p>Baselines to EVN stations are "missing" due to a fourfit error. They are present in the final correlation products.</p>
VLBA: Pt	p	yes	<a href="#">c181d FRINGE RfAnt Pt LLRR AllSrc.pdf</a> <a href="#">c181d No0038 1055+018 Ap LL.pdf</a> , <a href="#">c181d No0038 1055+018 Ap LR.pdf</a> , <a href="#">c181d No0038 1055+018 Ap RL.pdf</a> , <a href="#">c181d No0038 1055+018 Ap RR.pdf</a>	<p>Baselines to EVN stations are "missing" due to a fourfit error. They are present in the final correlation products.</p>

Station	Code	Fringes	Plots	Comments
				Taken out for several scans because of USNO observing.
GBT: Gb	G	yes	<a href="#">c181d FRINGE RfAnt Gb LLRR AllSrc.pdf</a> <a href="#">c181d No0016 OJ287 AG LL.pdf</a> , <a href="#">c181d No0016 OJ287 AG RR.pdf</a> , no LR or RL fringe	Baselines to EVN stations are "missing" due to a fourfit error. They are present in the final correlation products.  For most of this experiment: unrecoverable read error of the Mk5 module, logs indicate bad weather, so this loss is considered non-critical
GLT: Gl	g	yes	<a href="#">c181d FRINGE RfAnt Gl LLRR AllSrc.pdf</a> <a href="#">c181d No0038 1055+018 Ag LL.pdf</a> , <a href="#">c181d No0038 1055+018 Ag LR.pdf</a> , <a href="#">c181d No0038 1055+018 Ag RL.pdf</a> , <a href="#">c181d No0038 1055+018 Ag RR.pdf</a> <a href="#">c181d No0016 OJ287 gP LL.pdf</a> , <a href="#">c181d No0016 OJ287 gP LR.pdf</a> , <a href="#">c181d No0016 OJ287 gP RL.pdf</a> , <a href="#">c181d No0016 OJ287 gP RR.pdf</a>	Data analysis has shown that GLT recorded in unknown polarization instead of circular (most probably unknown elliptic). At this moment <b>IT SHOULD NOT BE USED FOR ANY POLARIMETRY</b> and in general dealt with very carefully.
ALMA: Aa	A	yes	<a href="#">c181d FRINGE RfAnt Aa LLRR AllSrc.pdf</a> <a href="#">c181d No0016 OJ287 AG LL.pdf</a> , <a href="#">c181d No0016 OJ287 AG RR.pdf</a> , no LR or RL fringe	Observed in linear polarization, converted to

Station	Code	Fringes	Plots	Comments
			<p><a href="#">c181d No0023 1055+018 AZ LL.pdf</a>, <a href="#">c181d No0023 1055+018 AZ LR.pdf</a>,  <a href="#">c181d No0023 1055+018 AZ RL.pdf</a>, <a href="#">c181d No0023 1055+018 AZ RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 AB LL.pdf</a>, <a href="#">c181d No0038 1055+018 AB LR.pdf</a>,  <a href="#">c181d No0038 1055+018 AB RL.pdf</a>, <a href="#">c181d No0038 1055+018 AB RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 Af LL.pdf</a>, <a href="#">c181d No0038 1055+018 Af LR.pdf</a>,  <a href="#">c181d No0038 1055+018 Af RL.pdf</a>, <a href="#">c181d No0038 1055+018 Af RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 Ag LL.pdf</a>, <a href="#">c181d No0038 1055+018 Ag LR.pdf</a>,  <a href="#">c181d No0038 1055+018 Ag RL.pdf</a>, <a href="#">c181d No0038 1055+018 Ag RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 Ak LL.pdf</a>, <a href="#">c181d No0038 1055+018 Ak LR.pdf</a>,  <a href="#">c181d No0038 1055+018 Ak RL.pdf</a>, <a href="#">c181d No0038 1055+018 Ak RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 Al LL.pdf</a>, <a href="#">c181d No0038 1055+018 Al LR.pdf</a>,  <a href="#">c181d No0038 1055+018 Al RL.pdf</a>, <a href="#">c181d No0038 1055+018 Al RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 An LL.pdf</a>, <a href="#">c181d No0038 1055+018 An LR.pdf</a>,  <a href="#">c181d No0038 1055+018 An RL.pdf</a>, <a href="#">c181d No0038 1055+018 An RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 Ao LL.pdf</a>, no LR fringe,  <a href="#">c181d No0038 1055+018 Ao RL.pdf</a>, <a href="#">c181d No0038 1055+018 Ao RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 Ap LL.pdf</a>, <a href="#">c181d No0038 1055+018 Ap LR.pdf</a>,  <a href="#">c181d No0038 1055+018 Ap RL.pdf</a>, <a href="#">c181d No0038 1055+018 Ap RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 AX LL.pdf</a>, <a href="#">c181d No0038 1055+018 AX LR.pdf</a>,  <a href="#">c181d No0038 1055+018 AX RL.pdf</a>, <a href="#">c181d No0038 1055+018 AX RR.pdf</a></p> <p><a href="#">c181d No0038 1055+018 AY LL.pdf</a>, <a href="#">c181d No0038 1055+018 AY LR.pdf</a>,  <a href="#">c181d No0038 1055+018 AY RL.pdf</a>, <a href="#">c181d No0038 1055+018 AY RR.pdf</a></p> <p><a href="#">c181d No0039 OJ287 Ab LL.pdf</a>, <a href="#">c181d No0039 OJ287 Ab LR.pdf</a>,  <a href="#">c181d No0039 OJ287 Ab RL.pdf</a>, <a href="#">c181d No0039 OJ287 Ab RR.pdf</a></p> <p><a href="#">c181d No0039 OJ287 Am LL.pdf</a>, <a href="#">c181d No0039 OJ287 Am LR.pdf</a>,  <a href="#">c181d No0039 OJ287 Am RL.pdf</a>, <a href="#">c181d No0039 OJ287 Am RR.pdf</a></p> <p><a href="#">c181d No0016 OJ287 AP LL.pdf</a>, <a href="#">c181d No0016 OJ287 AP LR.pdf</a>,  <a href="#">c181d No0016 OJ287 AP RL.pdf</a>, <a href="#">c181d No0016 OJ287 AP RR.pdf</a></p> <p>-----</p>	<p>circular polarization in post-correlation using PolConvert. For technical reasons the atmospheric correction was applied twice -- both in original ALMA data and during the correlation. Although a special procedure was developed to compensate for this, we found that its application leads to other difficulties, in particular to abnormally high fringe rate jumps, so in the final production run the double atmospheric correction was left as is.</p>

Station	Code	Fringes	Plots	Comments
KVN: Kt	t	yes	<a href="#">c181d FRINGE RfAnt Kt LLRR AllSrc.pdf</a> <a href="#">c181d No0087 OJ287 tu LL.pdf</a> , <a href="#">c181d No0087 OJ287 tu LR.pdf</a> , <a href="#">c181d No0087 OJ287 tu RL.pdf</a> , <a href="#">c181d No0087 OJ287 tu RR.pdf</a> <a href="#">c181d No0087 OJ287 ty LL.pdf</a> , <a href="#">c181d No0087 OJ287 ty LR.pdf</a> , <a href="#">c181d No0087 OJ287 ty RL.pdf</a> , <a href="#">c181d No0087 OJ287 ty RR.pdf</a>	
KVN: Ku	u	yes	<a href="#">c181d FRINGE RfAnt Ku LLRR AllSrc.pdf</a> <a href="#">c181d No0087 OJ287 tu LL.pdf</a> , <a href="#">c181d No0087 OJ287 tu LR.pdf</a> , <a href="#">c181d No0087 OJ287 tu RL.pdf</a> , <a href="#">c181d No0087 OJ287 tu RR.pdf</a>	
KVN: Ky	y	yes	<a href="#">c181d FRINGE RfAnt Ky LLRR AllSrc.pdf</a> <a href="#">c181d No0087 OJ287 ty LL.pdf</a> , <a href="#">c181d No0087 OJ287 ty LR.pdf</a> , <a href="#">c181d No0087 OJ287 ty RL.pdf</a> , <a href="#">c181d No0087 OJ287 ty RR.pdf</a>	

## Notes

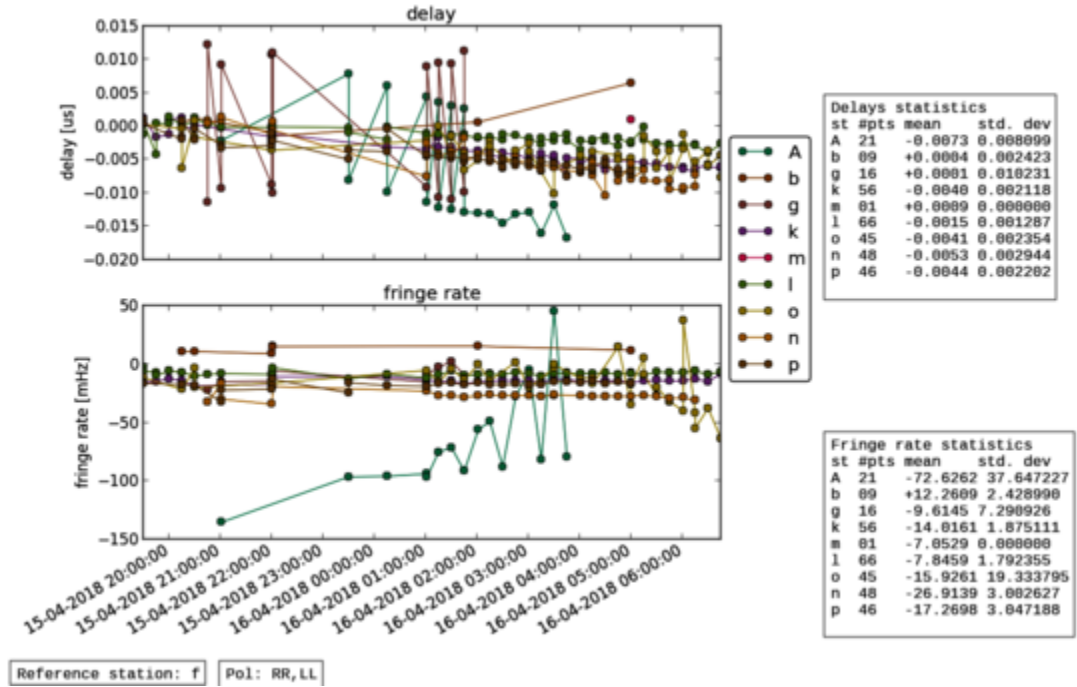
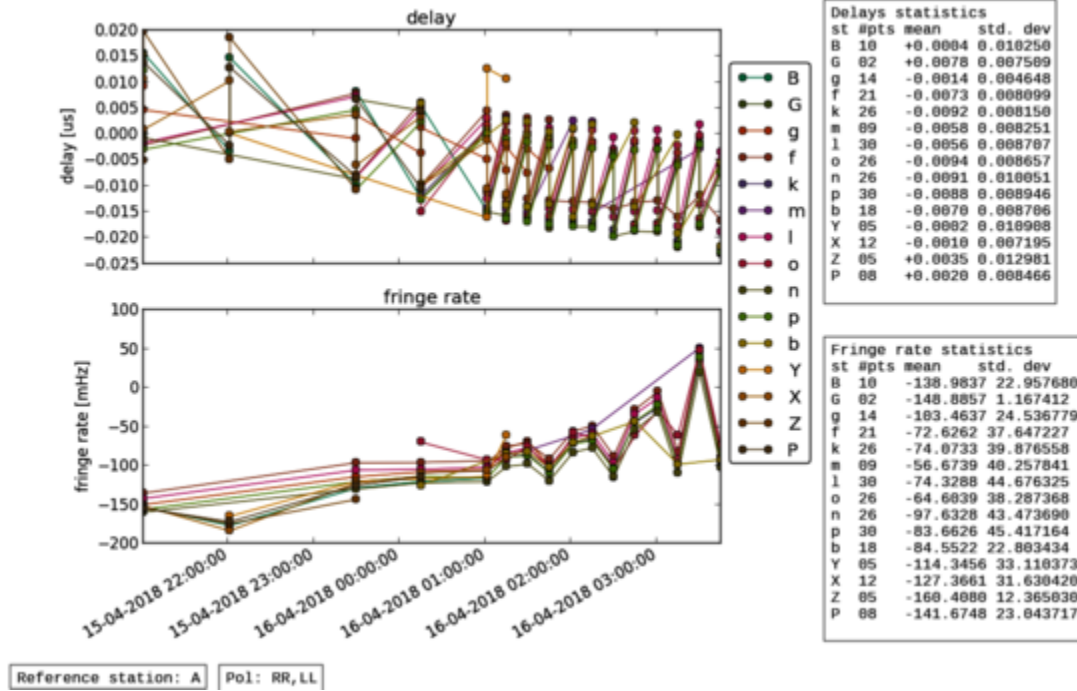
There were problems with some diagnostic plots of this experiment due to yet poorly understood errors of fourfit and other HOPS components. But this does not change the quality of the final correlation product. *(These issues were **fixed** in the second data release of 31/01/2019)*

GLT participated in this session for the first time as a test, and serious problems were detected when analysing its data. Be very carerful when using them.

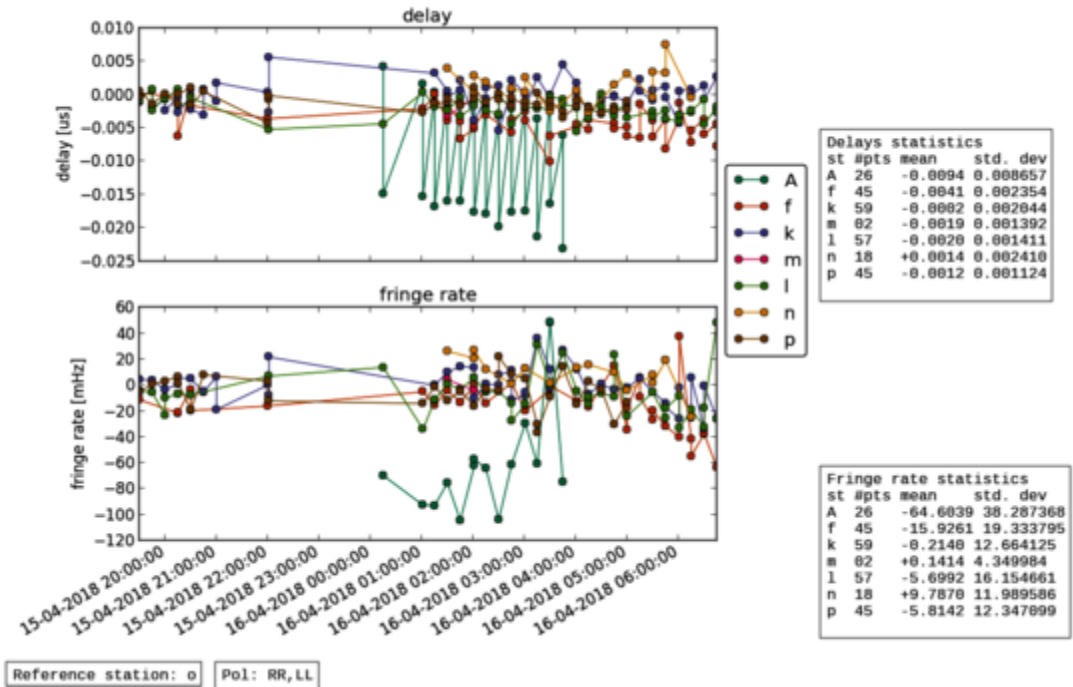
For technical reasons the correlation output is saved as 4 different fits files, see their content below in the pclist section.

## Post-Correlation checks

Residuals







**FITS completeness (plist)**

legend:

- o -- station scheduled and fully accounted for in the fits file
- 42 (or another number) -- station scheduled, but data found only for 42% of the scheduled interval
- x -- station scheduled, but corresponding entry not found in the fits file
- . -- station not scheduled

**mg004\_setup1.fits:**

			GB	EF	ON	PV	YS	MH	GL	NL	FD	PT	LA	OV	KP	BR	MK	AA	AA	KY	KU	KT
c181d_03D2D	No0004	OJ287	3mm	RDBE	o	o	o	o	o	o	.	.	.	.	.	.	.	.	.	.	.	.
c181d_05D2D	No0006	OJ287	3mm	RDBE	o	o	o	o	o	o	.	.	.	.	.	.	.	x	x	.	.	.
c181d_07D2D	No0009	OJ287	3mm	RDBE	o	o	o	o	o	o	.	.	.	.	.	.	.	x	x	.	.	.
c181d_09D2D	No0011	OJ287	3mm	RDBE	o	o	o	o	o	o	.	.	.	.	.	.	.	x	x	.	.	.
c181d_11D2D	No0013	OJ287	3mm	RDBE	o	o	o	o	o	o	.	o	.	.	.	.	.	x	x	.	.	.
c181d_13D2D	No0016	OJ287	3mm	RDBE	o	o	o	o	o	o	o	o	o	.	.	.	.	96	96	.	.	.
c181d_15D2D	No0018	OJ287	3mm	RDBE	o	o	o	o	o	o	o	o	o	o	o	o	.	o	o	.	.	.
c181d_16D2D	No0019	OJ287	3mm	RDBE	o	o	o	o	o	o	o	o	o	o	o	o	.	o	o	.	.	.
c181d_18D2D	No0021	OJ287	3mm	RDBE	.	.	.	.	.	o	o	o	o	o	o	o	.	.	.	.	.	.
c181d_34D2D	No0040	OJ287	3mm	RDBE	x	.	.	.	.	o	o	o	o	o	o	o	o	o	o	.	.	.
c181d_36D2D	No0042	1055+018	3mm	RDBE	x	.	.	.	.	o	o	o	o	o	o	.	o	o	.	.	.	
c181d_38D2D	No0045	OJ287	3mm	RDBE	x	.	.	.	.	o	o	o	o	o	o	o	o	o	o	.	.	.
c181d_40D2D	No0047	OJ287	3mm	RDBE	x	.	.	.	.	o	o	o	o	o	o	o	o	o	o	.	.	.
c181d_42D2D	No0049	1055+018	3mm	RDBE	x	.	.	.	.	o	o	o	o	o	o	o	o	o	o	.	.	.
c181d_44D2D	No0051	OJ287	3mm	RDBE	x	.	.	.	.	o	o	o	o	o	o	o	o	o	o	.	.	.
c181d_46D2D	No0054	OJ287	3mm	RDBE	x	.	.	.	.	o	o	o	o	o	o	o	o	o	o	.	.	.

