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LIGO/Virgo G211117 / GW151226: LOFAR follow-up

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FROM: Antonia Rowlinson at Amsterdam and ASTRON <b.a.rowlinson@uva.nl>

A. Rowlinson (UvA, ASTRON), J. Broderick (ASTRON), P.G. Jonker (SRON/RU), R.P. Fender (Oxford), R.A.M.J. Wijers (UvA), B.W. Stappers (Manchester), S. ter Veen (ASTRON), S. Ghosh (RU), S. Nissanke (RU), A. Shulevski (ASTRON) report on behalf of the LOFAR Transients Key Science project

On December 26, 2016, starting at 14:20 (UTC), we observed a large fraction of the localization error range of the Advanced LIGO trigger G211117 (GW151226) with the ILT (International Low-Frequency Array [LOFAR] Telescope). This is an additional set of LOFAR observations of these fields at 1 year following the detection. The observations were obtained with the High-Band Antennas (HBA) at a centre frequency of 145 MHz (bandwidth 15.6 MHz). We used 6 simultaneous beams on the sky, where each beam has a field of view of approximately 12 deg² (beam FWHM 3.9 degrees). The beam centres are given below:

Pointing 1 (starting at 14:22 UTC and 18:22 UTC)

1)	39.750000	19.433333	02:39:00.00	+19:26:00.0
2)	37.478042	19.814500	02:29:54.73	+19:48:52.2
3)	39.056375	21.630111	02:36:13.53	+21:37:48.4
4)	40.443625	17.236556	02:41:46.47	+17:14:11.6
5)	42.021958	19.052167	02:48:05.27	+19:03:07.8
6)	37.817000	17.209667	02:31:16.08	+17:12:34.8

Pointing 2 (starting at 14:52 UTC and 18:52 UTC)

1)	43.523458	24.012694	02:54:05.63	+24:00:45.7
2)	41.204125	24.163000	02:44:48.99	+24:09:46.8
3)	42.663792	26.172056	02:50:39.31	+26:10:19.4
4)	44.383125	21.853333	02:57:31.95	+21:51:12.0
5)	45.842792	23.862389	03:03:22.27	+23:51:44.6
6)	41.683000	21.657000	02:46:43.92	+21:39:25.2

Pointing 3 (starting at 15:22 UTC and 19:22 UTC)

1)	47.347500	28.815800	03:09:23.40	+28:48:56.9
2)	45.035000	29.249472	03:00:08.40	+29:14:58.1
3)	46.833417	31.111750	03:07:20.02	+31:06:42.3
4)	47.861583	26.519861	03:11:26.78	+26:31:11.5
5)	49.660000	28.382139	03:18:38.40	+28:22:55.7
6)	45.311208	26.473306	03:01:14.69	+26:28:23.9

Pointing 4 (starting at 15:52 UTC and 19:52 UTC)

1)	51.762750	33.469417	03:27:03.06	+33:28:09.9
2)	49.412000	33.897167	03:17:38.88	+33:53:49.8
3)	51.335000	35.820194	03:25:20.40	+35:49:12.7
4)	52.190500	31.118639	03:28:45.72	+31:07:07.1
5)	54.113500	33.041667	03:36:27.24	+33:02:30.0
6)	49.550083	31.096639	03:18:12.02	+31:05:47.9

Pointing 5 (starting at 16:22 UTC and 20:22 UTC)

1)	56.818083	37.934167	03:47:16.34	+37:56:03.0
2)	54.463958	38.555972	03:37:51.35	+38:33:21.5
3)	56.699333	40.366111	03:46:47.84	+40:21:58.0
4)	56.936833	35.502222	03:47:44.84	+35:30:08.0
5)	59.172208	37.312361	03:56:41.33	+37:18:44.5
6)	54.117958	35.824611	03:36:28.31	+35:49:28.6

Pointing 6 (starting at 16:52 UTC and 20:52 UTC)

1)	62.380833	42.438778	04:09:31.40	+42:26:19.6
2)	60.036333	43.290528	04:00:08.72	+43:17:25.9
3)	62.643042	44.919389	04:10:34.33	+44:55:09.8
4)	62.118625	39.958167	04:08:28.47	+39:57:29.4
5)	64.725333	41.587028	04:18:54.08	+41:35:13.3
6)	59.555833	40.151139	03:58:13.40	+40:09:04.1

Pointing 7 (starting at 17:22 UTC and 21:22 UTC)

1)	68.908792	46.437806	04:35:38.11	+46:26:16.1
2)	66.516750	47.358250	04:26:04.02	+47:21:29.7
3)	69.395792	48.954111	04:37:34.99	+48:57:14.8
4)	68.421792	43.921500	04:33:41.23	+43:55:17.4
5)	71.300833	45.517361	04:45:12.20	+45:31:02.5
6)	65.573417	44.433722	04:22:17.62	+44:26:01.4

Pointing 8 (starting at 17:52 UTC and 21:52 UTC)

1)	76.256792	50.093972	05:05:01.63	+50:05:38.3
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2) 73.881750 51.253417 04:55:31.62 +51:15:12.3
3) 77.159833 52.577833 05:08:38.36 +52:34:40.2
4) 75.353750 47.610111 05:01:24.90 +47:36:36.4
5) 78.631833 48.934528 05:14:31.64 +48:56:04.3
6) 72.434875 48.392333 04:49:44.37 +48:23:32.4

The observations cover roughly 200 square degrees in total. Each field was observed for a total of 53 min (2 x 26.5 min) with 10s time resolution after pre-processing.

Analysis is ongoing.