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<b>Title</b>	VizieR Online Data Catalog: Bootes field LOFAR 150-MHz observations (Williams+, 2016)
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<b>Journal</b>	VizieR Online Data Catalog



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J/MNRAS/460/2385 Bootes field LOFAR 150-MHz observations (Williams+, 2016)

LOFAR 150-MHz observations of the Bootes field: catalogue and source counts.  
 Williams W.L., van Weeren R.J., Rottgering H.J.A., Best P., Dijkema T.J.,  
 de Gasperin F., Hardcastle M.J., Heald G., Prandoni I., Sabater J.,  
 Shimwell T.W., Tasse C., van Bemmell I.M., Bruggen M., Brunetti G.,  
 Conway J.E., Ensslin T., Engels D., Falcke H., Ferrari C., Haverkorn M.,  
 Jackson N., Jarvis M.J., Kapinska A.D., Mahony E.K., Miley G.K.,  
 Morabito L.K., Morganti R., Orru E., Retana-Montenegro E., Sridhar S.S.,  
 Toribio M.C., White G.J., Wise M.W., Zwart J.T.L.  
 <Mon. Not. R. Astron. Soc., 460, 2385–2412 (2016)>  
 =[2016MNRAS.460.2385W](#) (SIMBAD/NED BibCode)

ADC\_Keywords: Surveys ; Galaxies, radio ; Radio continuum

Keywords: techniques: interferometric - surveys - galaxies: active -  
radio continuum: galaxies**Abstract:**

We present the first wide area (19 deg<sup>2</sup>), deep (~120-150 μJy/beam), high-resolution (5.6x7.4-arcsec) LOFAR High Band Antenna image of the Bootes field made at 130-169MHz. This image is at least an order of magnitude deeper and 3-5 times higher in angular resolution than previously achieved for this field at low frequencies. The observations and data reduction, which includes full direction-dependent calibration, are described here. We present a radio source catalogue containing 6276 sources detected over an area of 19deg<sup>2</sup>, with a peak flux density threshold of 5σ. As the first thorough test of the facet calibration strategy, introduced by van Weeren et al. ([2016ApJS..223...2V](#)), we investigate the flux and positional accuracy of the catalogue. We present differential source counts that reach an order of magnitude deeper in flux density than previously achieved at these low frequencies, and show flattening at 150-MHz flux densities below 10 mJy associated with the rise of the low flux density star-forming galaxies and radio-quiet AGN.

**Description:**

Here, we report on the first LOFAR Cycle 2 High Band Antenna (HBA) observations of the Bootes field. The Bootes field is one of the Tier-3 Survey fields, and the aim is to eventually survey this field to the extreme rms depth of 12μJy/beam (1σ) at 150MHz.

The Bootes field was observed on 2014 August 10 with the LOFAR HBA stations.

**File Summary:**

FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
<a href="#">table2.dat</a>	108	6276	LOFAR 150-MHz source catalogue
table2.fits	2880	250	Fits version of table 2

**See also:**

- [J/AJ/123/1784](#) : 1.4 GHz imaging of the Bootes field (de Vries+, 2002)
- [J/AJ/127/213](#) : LALA Bootes field X-ray source catalog (Wang+, 2004)
- [J/AJ/130/923](#) : Faint radio sources in the NOAO Bootes field (Wrobel+, 2005)
- [J/ApJ/634/L1](#) : 16μm sources in the NOAO Bootes field (Kasliwal+, 2005)
- [J/ApJS/161/9](#) : X-ray survey of the NDWFS Bootes field (Kenter+, 2005)
- [J/ApJ/641/140](#) : Optical counterparts in NDWFS Bootes field (Brand+, 2006)
- [J/A+A/535/A38](#) : Observations of NOAO Bootes field at 153MHz (Intema+, 2011)
- [J/ApJ/772/26](#) : AGN with WISE. II. The NDWFS Bootes field (Assef+, 2013)
- [J/A+A/549/A55](#) : GMRT 153MHz (2m) Radio Mini Survey I. (Williams+, 2013)
- [J/MNRAS/450/1477](#) : VLA 352MHz image of the Bootes field. I. (Coppejans+, 2015)
- [J/ApJ/817/119](#) : Spitzer/IRAC variability survey of Bootes field (Kozlowski+, 2016)
- 
- [J/ApJ/793/82](#) : LOFAR Bootes and 3C295 field sources (van Weeren+, 2014)

**Byte-by-byte Description of file:** [table2.dat](#)

Bytes	Format	Units	Label	Explanations
1- 19	A19	---	Name	LOFAR name (JHHMMSS.ss+DDMMSS.s) (LOFAR_name)
21- 29	F9.5	<a href="#">deg</a>	RAdeg	Flux-weighted right ascension (J2000) (RA)
31- 37	F7.5	<a href="#">deg</a>	e_RAdeg	rms uncertainty on RAdeg (E_RA)
39- 47	F9.5	<a href="#">deg</a>	DEdeg	Flux-weighted declination (J2000) (DEC)
49- 55	F7.5	<a href="#">deg</a>	e_DEdeg	rms uncertainty on DEdeg (E_DEC)
57- 63	F7.2	<a href="#">mJy</a>	Sint	Integrated source flux density at 150MHz (Total_flux)
65- 69	F5.2	<a href="#">mJy</a>	e_Sint	rms uncertainty on Sint (E_Totalflux)
71- 77	F7.2	<a href="#">mJy/beam</a>	Fpeak	Peak flux density at 150MHz (Peak_flux)
79- 83	F5.2	<a href="#">mJy/beam</a>	e_Fpeak	rms uncertainty on Fpeak (E_Peakflux)
85- 88	F4.2	---	Fsmear	Approximate correction factor to the peak

