



Publication Year	2015
Acceptance in OA	2020-04-24T16:59:57Z
Title	VizieR Online Data Catalog: ECDFS sources optical/IR counterparts (Bonzini+, 2013)
Authors	Bonzini, M., Padovani, P., Mainieri, V., Kellermann, K. I., Miller, N., Rosati, P., TOZZI, Paolo, Vattakunnel, S.
Handle	http://hdl.handle.net/20.500.12386/24238



J/MNRAS/436/3759 ECDFS sources optical/IR counterparts (Bonzini+, 2013)

The sub-mJy radio sky in the Extended Chandra Deep Field-South: source population.

Bonzini M., Padovani P., Mainieri V., Kellermann K.I., Miller N., Rosati P., Tozzi P., Vattakunnel S.
 <Mon. Not. R. Astron. Soc., 436, 3759-3771 (2013)>
 =[2013MNRAS.436.3759B](#) (SIMBAD/NED BibCode)

ADC_Keywords: Active gal. nuclei ; Infrared sources ; X-ray sources ; Radio sources

Keywords: catalogues - galaxies: active - galaxies: star formation

Abstract:

The sub-mJy radio population is a mixture of active systems, that is star-forming galaxies (SFGs) and active galactic nuclei (AGNs). We study a sample of 883 radio sources detected at 1.4GHz in a deep Very Large Array survey of the Extended Chandra Deep Field-South that reaches a best rms sensitivity of 6μJy. We have used a simple scheme to disentangle SFGs, radio-quiet (RQ), and radio-loud (RL) AGNs based on the combination of radio data with Chandra X-ray data and mid-infrared observations from Spitzer. We find that at flux densities between about 30 and 100μJy, the radio population is dominated by SFGs (~60%) and that RQ AGNs become increasingly important over RL ones below 100 μJy. We also compare the host galaxy properties of the three classes in terms of morphology, optical colours and stellar masses. Our results show that both SFG and RQ AGN host galaxies have blue colours and late-type morphology while RL AGNs tend to be hosted by massive red galaxies with early-type morphology. This supports the hypothesis that radio emission in SFGs and RQ AGNs mainly comes from the same physical process: star formation in the host galaxy.

Description:

We consider a sample of 883 radio sources detected at 1.4GHz in a deep Very Large Array (VLA) survey of the Extended Chandra Deep Field-South (E-CDFS) that reaches a best rms sensitivity of 6μJy.

We used deep Spitzer InfraRed Array Camera (IRAC) and Multiband Imaging Photometer for Spitzer (MIPS) data. The IRAC data were obtained as part of the Spitzer IRAC/MUSYC Public Legacy Survey in the Extended CDF-South (SIMPLE) survey (Damen et al., [2011ApJ...727....1D](#), Cat. [J/ApJ/727/1](#)). It covers an area of about 1600 arcmin² centred on the E-CDFS. The typical 5σ flux density limits are 1.1, 1.3, 6.3 and 7.6μJy at 3.6, 4.5, 5.8 and 8.0μm, respectively. We also use MIPS 24μm data from the Far-Infrared Deep Extragalactic Legacy (FIDEL) survey (Dickinson & FIDEL Team, [2007AAS...211.5216D](#)).

The E-CDFS has been mapped in the X-ray band by Chandra. A total of 129 radio sources have a counterpart in the 4 Ms observations of the CDFS presented in Xue et al. ([2011ApJS...195...10X](#), Cat. [J/ApJS/195/10](#)) and another 99 in the main E-CDFS catalogue by Lehmer et al. ([2005ApJS...161...21L](#), Cat. [J/ApJS/161/21](#)) obtained with shallower (250ks) observations in each of four pointings. The list of the X-ray counterparts of the radio sources is given in Bonzini et al. ([2012ApJS...203...15B](#), Cat. [J/ApJS/203/15](#)).

File Summary:

FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
table1.dat	87	883	Classification of radio sources

See also:

[J/ApJS/161/21](#) : Extended Chandra Deep Field-South survey (Lehmer+, 2005)
[J/ApJS/195/10](#) : The CDF-S survey: 4Ms source catalogs (Xue+, 2011)
[J/ApJ/727/1](#) : IRAC/MUSYC SIMPLE survey (Damen+, 2011)
[J/ApJS/203/15](#) : Counterparts to 1.4GHz sources in ECDF-S (Bonzini+, 2012)

Byte-by-byte Description of file: [table1.dat](#)

Bytes	Format	Units	Label	Explanations
1- 3	I3	---	RID	Radio source ID, [MBF2013] NNN in Simbad (1)
5- 6	I2	h	RAh	? Optical-IR counterpart right ascension (J2000)
8- 9	I2	min	RAm	? Optical-IR counterpart right ascension (J2000)
11- 15	F5.2	s	RAS	? Optical-IR counterpart right ascension (J2000)

