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| <b>Publication Year</b> | 2015  |
| <b>Acceptance in OA</b> | 2020-04-24T16:06:22Z  |
| <b>Title</b>            | VizieR Online Data Catalog: Evolution of galaxy clusters metal abundance (Ettori+, 2015)        |
| <b>Authors</b>          | ETTORI, STEFANO, Baldi, A., Balestra, I., GASTALDELLO, FABIO, MOLENDI, SILVANO, TOZZI, Paolo    |
| <b>Handle</b>           | <a href="http://hdl.handle.net/20.500.12386/24230">http://hdl.handle.net/20.500.12386/24230</a> |
| <b>Journal</b>          | VizieR Online Data Catalog  |



J/A+A/578/A46 Evolution of galaxy clusters metal abundance (Ettori+, 2015)

The evolution of the spatially-resolved metal abundance in galaxy clusters up to  $z=1.4$ .

Ettori S., Baldi A., Balestra I., Gastaldello F., Molendi S., Tozzi P.  
<Astron. Astrophys. 578, A46 (2015)>  
[=2015A&A...578A..46E](#)

**ADC\_Keywords:** Clusters, galaxy ; Redshifts ; Abundances

**Keywords:** galaxies: clusters: intracluster medium - X-rays: galaxies: clusters

**Abstract:**

We present the combined analysis of the metal content of 83 objects in the redshift range 0.09-1.39, and spatially-resolved in the 3 bins (0-0.15, 0.15-0.4, >0.4) $R_{500}$ , as obtained with similar analysis using XMM-Newton data in Leccardi & Molendi ([2008A&A...487..461L](#)) and Baldi et al. ([2012A&A...537A.142B](#)).

By combining these two large datasets, we investigate the relations between abundance, temperature, radial position and redshift holding in the Intra-Cluster Medium.

We fit functional forms to the combination of the different physical quantities of interest, i.e. ICM metal abundance, radius, and redshift. We use the pseudo-entropy ratio to separate the Cool-Core (CC) cluster population, where the central gas density tends to be relatively higher, cooler and more metal rich, from the Non-Cool-Core systems.

**Description:**

The full dataset is available at <http://pico.bo.astro.it/settori/abun/xmm.dat> and will be updated.

**File Summary:**

| FileName                | Lrecl | Records | Explanations                         |
|-------------------------|-------|---------|--------------------------------------|
| ReadMe                  | 80    | .       | This file                            |
| <a href="#">xmm.dat</a> | 77    | 221     | Full dataset of clusters of galaxies |

**See also:**

<http://pico.bo.astro.it/settori/abun/xmm.dat> : Updated full dataset

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

| Bytes  | Format | Units               | Label   | Explanations   |
|--------|--------|---------------------|---------|--|
| 1- 15  | A15    | ---                 | Name    | Cluster name   |
| 17- 22 | F6.4   | ---                 | z       | [0.09/1.4] Redshift  |
| 24- 28 | F5.3   | ---                 | R0      | [0/0.4] Inner-radius, fraction of $R_{200}$  |
| 30- 34 | F5.3   | ---                 | R1      | [0.1/1] Outer-radius, fraction of $R_{200}$  |
| 36- 41 | F6.3   | <a href="#">keV</a> | T       | [1.9/13] X-ray Temperature   |
| 43- 47 | F5.3   | <a href="#">keV</a> | e_T     | [0.05/4.3] Error on Temperature  |
| 49- 53 | F5.3   | ---                 | Z       | [0/1] Metallicity with respect to Anders and Grevesse 1989 (Geochim. Cosmochim. Acta, 53, 197) |
| 55- 59 | F5.3   | ---                 | e_Z     | [0.02/0.5] Error on Metallicity, lower value at $1\sigma$                                      |
| 61- 65 | F5.3   | ---                 | E_Z     | [0.02/0.5] Error on Metallicity, upper value at $1\sigma$                                      |
| 67- 71 | F5.3   | ---                 | sigma   | [0.27/1.22] Pseudo-Entropy-Ratio $\sigma$ ( <a href="#">1</a> )                                |
| 73- 77 | F5.3   | ---                 | e_sigma | [0.01/0.48] Error on Pseudo-Entropy-Ratio  |

**Note (1):** the Pseudo-Entropy-Ratio is defined as

$$\sigma = (T_0/T_1) \cdot (EM_0/EM_1), \text{ where}$$

$T_0$  = temperature measured in the inner region  $r \leq 0.15R_{500}$

$T_1$  = temperature measured in the outer region  $0.15R_{500} \leq r \leq 0.4R_{500}$

$EM_0$  = emission measure of the inner region

$EM_1$  = emission measure of the outer region

**Acknowledgements:**

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(End)

Patricia Vannier [CDS] 29-Apr-2015

The document above follows the rules of the [Standard Description for Astronomical Catalogues](#); from this documentation it is possible to generate *f77* program to load files [into arrays](#) or [line by line](#)

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