

NEW WMAP CATALOG SOURCES OR HOW MANY BRIGHT SOURCES ARE ON THE SKY

S.A. Trushkin

Special Astrophysical Observatory of RAS, Nizhnij Arkhyz, Russia
satr@@sao.ru

We continued studies of the WMAP-sources after publishing results of three years (Hinshaw et al.; Jarosik et al.; Page et al.; Spergel et al. 2006). Trushkin (2003) presented compiled radio spectra of 205 extragalactic sources from the catalog, compiled from the WMAP survey data at 23-94 GHz in the first year of its operation.

We have shown that 205 WMAP-sources are reliably identified with radio sources from known catalogs (FIRST, NVSS and so on). $\sim 50\%$ of the sources have flat or inverted spectra, $\sim 15\%$ – spectra with the peaks at 5-20 GHz (GPS-sources), $\sim 10\%$ – power-law spectra and $\sim 10\%$ – show the composite spectra (as 3C84).

We discussed recent results of the radio observations of the AGNs from the WMAP catalog with the RATAN-600 and RT32 telescopes.

Now the final 3-year catalog contains 323 sources, while four identified sources from the former version were not included in the new one. Using again the search *select and match* and spectra plotting procedures in our CATS data base (Verkhodanov et al. 1997) we have found optical and radio identifications for the most of new 120 WMAP-sources from the radio and optical catalogs in the CATS data base. Now we discuss results for new 120 sources, their spectra and features. The statistics for types of the sources did not generally changed. We have found that 313 WMAP-sources have optical counterparts: 220 – quasars, 30 – galaxies, 32 – AGNs, 30 – BL Lac objects and one – the planetary nebula IC418. We have observed some of the new WMAP-sources with RT32 (IAA) at 2.3 and 8.5 GHz. Comparison fluxes from the first version catalog and second one allows us to estimate of the variability of the sample. As was expected, the index of the variability at 63 GHz is higher than at 23 GHz. There are the sources with 100% changes of the fluxes on the effective time scale about one year, $(3\text{yr}-1\text{yr})/2$ in the WMAP3-catalog.

Using an analogous method of the source selection from the CATS data base we have found that a probable number of the sources brighter 400 mJy at 23 GHz is equal to 1300-1500 on the sky. Thus there is a strong effect of confusion dramatically decreasing the number (323) of detected sources in the WMAP survey.

We hope that such studies will help in the future PLANCK CMB-experiment data-preprocessing.

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References

- Hinshaw G. et al.: astro-ph/0603451.
- Jarosik N. et al.: astro-ph/0603452.
- Page L. et al.: astro-ph/0603450.
- Spergel D.N. et al.: astro-ph/0603449.
- Trushkin S.A.: *Bulletin of SAO RAS*, 2003, **55**, 90.
- Verkhodanov O.V., Trushkin S.A., Andernach H., Chernenkov V.N.: *ASP Conference Series*, 1997, **125**, 322.