



Publication Year	2015
Acceptance in OA	2020-05-15T13:29:25Z
Title	Erratum: "The Second Catalog of Active Galactic Nuclei Detected by the Fermi Large Area Telescope" (2011, ApJ, 743, 171)
Authors	Ackermann, M., Ajello, M., Allafort, A., Antolini, E., Atwood, W. B., Axelsson, M., Baldini, L., Ballet, J., Barbiellini, G., Bastieri, D., Bechtol, K., Ciprini, S., Claus, R., Cohen-Tanugi, J., Conrad, J., Costamante, L., Cutini, S., de Angelis, A., de Palma, F., Dermer, C. D., Michelson, P. F., Nakamori, T., Digel, S. W., Silva, E. do Couto e., Drell, P. S., Dubois, R., Escande, L., Favuzzi, C., Fegan, S. J., Ferrara, E. C., Finke, J., Focke, W. B., Naumann-Godo, M., Mitthumsiri, W., Fortin, P., FRAILIS, Marco, Fukazawa, Y., Funk, S., Fusco, P., Gargano, F., Gasparrini, D., Gehrels, N., Germani, S., Nolan, P. L., Giebels, B., Mizuno, T., Giglietto, N., Giordano, F., GIROLETTI, MARCELLO, Glanzman, T., Godfrey, G., Grenier, I. A., Grove, J. E., Norris, J. P., Guiriec, S., Gustafsson, M., Moiseev, A. A., Hadasch, D., Hayashida, M., Hays, E., Healey, S. E., Horan, D., Hou, X., Hughes, R. E., Nuss, E., IAFRATE, Giulia, Jóhannesson, G., Johnson, A. S., Monte, C., Johnson, W. N., Kamae, T., Katagiri, H., Kataoka, J., Knödlseider, J., Kuss, M., Ohno, M., Lande, J., Larsson, S., Latronico, L., Longo, F., Monzani, M. E., Loparco, F., Lott, B., Lovellette, M. N., Lubrano, P., Madejski, G. M., Ohsugi, T., Mazziotta, M. N., McConville, W., Moretti, E., Morselli, A., Moskalenko, I. V., Bellazzini, R., Murgia, S., Okumura, A., Omodei, N., Berenji, B., Burnett, T. H., ORIENTI, Monica, Orlando, E., Ormes, J. F., Ozaki, M., Paneque, D., Parent, D., Pesce-Rollins, M., Pierbattista, M., PIRANOMONTE, Silvia, Piron, F., Buson, S., Blandford, R. D., Pivato, G., Porter, T. A., Rainò, S., Rando, R., Razzano, M., Razzaque, S., Reimer, A., Reimer, O., Ritz, S., Caliendo, G. A., Rochester, L. S., Bloom, E. D., Romani, R. W., Roth, M., Sanchez, D. A., Sbarra, C., Scargle, J. D., Schalk, T. L., SGRO, C., Shaw, M. S., Cameron, R. A., Siskind, E. J., Spandre, G., Bonamente, E., Spinelli, P., Strong, A. W., Suson, D. J., Tajima, H., Takahashi, H., Takahashi, T., Tanaka, T., CARAVEO, PATRIZIA, Thayer, J. G., Thayer, J. B., Thompson, D. J., Borgland, A. W., Tibaldo, L., Tinivella, M., Torres, D. F., Tosti, G., Troja, E., Uchiyama, Y., Casandjian, J. M., Vandenbroucke, J., Vasileiou, V., Vianello, G., Vitale, V., Bottacini, E., Waite, A. P., Wallace, E., Wang, P., Winer, B. L., Wood, D. L., Cavazzuti, E., Wood, K. S., Zimmer, S., Bouvier, A., Bregeon, J., Brigida, M., Bruel, P., Buehler, R., Cecchi, C., Charles, E., Cheung, C. C., McEnery, J. E., Chiang, J.
Publisher's version (DOI)	10.1088/0004-637X/806/1/144
Handle	http://hdl.handle.net/20.500.12386/24874

ERRATUM “THE SECOND CATALOG OF ACTIVE GALACTIC NUCLEI DETECTED BY THE *FERMI* LARGE AREA TELESCOPE” (2011, ApJ, 743, 171)

M. ACKERMANN¹, M. AJELLO¹, A. ALLAFORT¹, E. ANTOLINI^{2,3}, W. B. ATWOOD⁴, M. AXELSSON^{5,6,7}, L. BALDINI⁸, J. BALLE⁹, G. BARBIELLINI^{10,11}, D. BASTIERI^{12,13}, K. BECHTOL¹, R. BELLAZZINI⁸, B. BERENJI¹, R. D. BLANDFORD¹, E. D. BLOOM¹, E. BONAMENTE^{2,3}, A. W. BORGLAND¹, E. BOTTACINI¹, A. BOUVIER⁴, J. BREGEON⁸, M. BRIGIDA^{14,15}, P. BRUEL¹⁶, R. BUEHLER¹, T. H. BURNETT¹⁷, S. BUSON^{12,13}, G. A. CALIANDRO¹⁸, R. A. CAMERON¹, P. A. CARAVEO¹⁹, J. M. CASANDJIAN⁹, E. CAVAZZUTI²⁰, C. CECCHI^{2,3}, E. CHARLES¹, C. C. CHEUNG²¹, J. CHIANG¹, S. CIPRINI^{3,22}, R. CLAUS¹, J. COHEN-TANUGI²³, J. CONRAD^{6,24,63}, L. COSTAMANTE¹, S. CUTINI²⁰, A. DE ANGELIS²⁵, F. DE PALMA^{14,15}, C. D. DERMER²⁶, S. W. DIGEL¹, E. DO COUTO E SILVA¹, P. S. DRELL¹, R. DUBOIS¹, L. ESCANDE²⁷, C. FAVUZZI^{14,15}, S. J. FEGAN¹⁶, E. C. FERRARA²⁸, J. FINKE²⁶, W. B. FOCKE¹, P. FORTIN¹⁶, M. FRAILIS^{25,29}, Y. FUKAZAWA³⁰, S. FUNK¹, P. FUSCO^{14,15}, F. GARGANO¹⁵, D. GASPARRINI²⁰, N. GEHRELS²⁸, S. GERMANI^{2,3}, B. GIEBELS¹⁶, N. GIGLIETTO^{14,15}, P. GIOMMI²⁰, F. GIORDANO^{14,15}, M. GIROLETTI³¹, T. GLANZMAN¹, G. GODFREY¹, I. A. GRENIER⁹, J. E. GROVE²⁶, S. GUIRIEC³², M. GUSTAFSSON¹², D. HADASCH¹⁸, M. HAYASHIDA^{1,33}, E. HAYS²⁸, S. E. HEALEY¹, D. HORAN¹⁶, X. HOU³⁴, R. E. HUGHES³⁵, G. IAFRATE^{10,29}, G. JÓHANNESSON³⁶, A. S. JOHNSON¹, W. N. JOHNSON²⁶, T. KAMAE¹, H. KATAGIRI³⁷, J. KATAOKA³⁸, J. KNÖDLSER^{39,40}, M. KUSS⁸, J. LANDE¹, S. LARSSON^{5,6,24}, L. LATRONICO⁸, F. LONGO^{10,11}, F. LOPARCO^{14,15}, B. LOTT²⁷, M. N. LOVELLETTE²⁶, P. LUBRANO^{2,3}, G. M. MADEJSKI¹, M. N. MAZZIOTTA¹⁵, W. MC CONVILLE^{28,41}, J. E. MCENERY^{28,41}, P. F. MICHELSON¹, W. MITTHUMSIRI¹, T. MIZUNO³⁰, A. A. MOISEEV^{41,42}, C. MONTE^{14,15}, M. E. MONZANI¹, E. MORETTI^{6,7}, A. MORSELLI⁴³, I. V. MOSKALENKO¹, S. MURGIA¹, T. NAKAMORI³⁸, M. NAUMANN-GODO⁹, P. L. NOLAN¹, J. P. NORRIS⁴⁴, E. NUSS²³, M. OHNO⁴⁵, T. OHSUGI⁴⁶, A. OKUMURA^{1,45}, N. OMODEI¹, M. ORIENTI³¹, E. ORLANDO^{1,47}, J. F. ORMES⁴⁸, M. OZAKI⁴⁵, D. PANEQUE^{1,49}, D. PARENT^{50,62}, M. PESCE-ROLLINS⁸, M. PIERBATTISTA⁹, S. PIRANOMONTE⁵¹, F. PIRON²³, G. PIVATO¹³, T. A. PORTER^{1,1}, S. RAINÒ^{14,15}, R. RANDO^{12,13}, M. RAZZANO^{4,8}, S. RAZZAQUE⁵⁰, A. REIMER^{1,52}, O. REIMER^{1,52}, S. RITZ⁴, L. S. ROCHESTER¹, R. W. ROMANI¹, M. ROTH¹⁷, D. A. SANCHEZ⁵³, C. SBARRA¹², J. D. SCARGLE⁵⁴, T. L. SCHALK⁴, C. SGRO⁸, M. S. SHAW¹, E. J. SISKIND⁵⁵, G. SPANDRE⁸, P. SPINELLI^{14,15}, A. W. STRONG⁴⁷, D. J. SUSON⁵⁶, H. TAJIMA^{1,57}, H. TAKAHASHI⁴⁶, T. TAKAHASHI⁴⁵, T. TANAKA¹, J. G. THAYER¹, J. B. THAYER¹, D. J. THOMPSON²⁸, L. TIBALDO^{12,13}, M. TINIVELLA⁸, D. F. TORRES^{18,58}, G. TOSTI^{2,3}, E. TROJA^{28,64}, Y. UCHIYAMA¹, J. VANDENBROUCKE¹, V. VASILEIOU²³, G. VIANELLO^{1,59}, V. VITALE^{43,60}, A. P. WAITE¹, E. WALLACE¹⁷, P. WANG¹, B. L. WINER³⁵, D. L. WOOD^{61,62}, K. S. WOOD²⁶, AND S. ZIMMER^{6,24}

¹ W. W. Hansen Experimental Physics Laboratory, Kavli Institute for Particle Astrophysics and Cosmology, Department of Physics and SLAC National Accelerator Laboratory, Stanford University, Stanford, CA 94305, USA

² Istituto Nazionale di Fisica Nucleare, Sezione di Perugia, I-06123 Perugia, Italy

³ Dipartimento di Fisica, Università degli Studi di Perugia, I-06123 Perugia, Italy

⁴ Santa Cruz Institute for Particle Physics, Department of Physics and Department of Astronomy and Astrophysics, University of California at Santa Cruz, Santa Cruz, CA 95064, USA

⁵ Department of Astronomy, Stockholm University, SE-106 91 Stockholm, Sweden

⁶ The Oskar Klein Centre for Cosmoparticle Physics, AlbaNova, SE-106 91 Stockholm, Sweden

⁷ Department of Physics, Royal Institute of Technology (KTH), AlbaNova, SE-106 91 Stockholm, Sweden

⁸ Istituto Nazionale di Fisica Nucleare, Sezione di Pisa, I-56127 Pisa, Italy

⁹ Laboratoire AIM, CEA-IRFU/CNRS/Université Paris Diderot, Service d'Astrophysique, CEA Saclay, 91191 Gif sur Yvette, France

¹⁰ Istituto Nazionale di Fisica Nucleare, Sezione di Trieste, I-34127 Trieste, Italy

¹¹ Dipartimento di Fisica, Università di Trieste, I-34127 Trieste, Italy

¹² Istituto Nazionale di Fisica Nucleare, Sezione di Padova, I-35131 Padova, Italy

¹³ Dipartimento di Fisica “G. Galilei”, Università di Padova, I-35131 Padova, Italy

¹⁴ Dipartimento di Fisica “M. Merlin” dell’Università e del Politecnico di Bari, I-70126 Bari, Italy

¹⁵ Istituto Nazionale di Fisica Nucleare, Sezione di Bari, 70126 Bari, Italy

¹⁶ Laboratoire Leprince-Ringuet, École polytechnique, CNRS/IN2P3, Palaiseau, France

¹⁷ Department of Physics, University of Washington, Seattle, WA 98195-1560, USA

¹⁸ Institut de Ciències de l’Espai (IEEE-CSIC), Campus UAB, 08193 Barcelona, Spain

¹⁹ INAF-Istituto di Astrofisica Spaziale e Fisica Cosmica, I-20133 Milano, Italy

²⁰ Agenzia Spaziale Italiana (ASI) Science Data Center, I-00044 Frascati (Roma), Italy; elisabetta.cavazzuti@asdc.asi.it; sarac@slac.stanford.edu; gasparrini@asdc.asi.it

²¹ National Research Council Research Associate, National Academy of Sciences, Washington, DC 20001, USA

²² ASI Science Data Center, I-00044 Frascati (Roma), Italy

²³ Laboratoire Univers et Particules de Montpellier, Université Montpellier 2, CNRS/IN2P3, Montpellier, France

²⁴ Department of Physics, Stockholm University, AlbaNova, SE-106 91 Stockholm, Sweden

²⁵ Dipartimento di Fisica, Università di Udine and Istituto Nazionale di Fisica Nucleare, Sezione di Trieste, Gruppo Collegato di Udine, I-33100 Udine, Italy

²⁶ Space Science Division, Naval Research Laboratory, Washington, DC 20375-5352, USA; charles.dermer@nrl.navy.mil

²⁷ Université Bordeaux 1, CNRS/IN2P3, Centre d’Études Nucléaires de Bordeaux Gradignan, 33175 Gradignan, France; lott@cenbg.in2p3.fr

²⁸ NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA

²⁹ Osservatorio Astronomico di Trieste, Istituto Nazionale di Astrofisica, I-34143 Trieste, Italy

³⁰ Department of Physical Sciences, Hiroshima University, Higashi-Hiroshima, Hiroshima 739-8526, Japan

³¹ INAF Istituto di Radioastronomia, 40129 Bologna, Italy

³² Center for Space Plasma and Aeronomic Research (CSPAR), University of Alabama in Huntsville, Huntsville, AL 35899, USA

³³ Department of Astronomy, Graduate School of Science, Kyoto University, Sakyo-ku, Kyoto 606-8502, Japan

³⁴ Centre d’Études Nucléaires de Bordeaux Gradignan, IN2P3/CNRS, Université Bordeaux 1, BP120, F-33175 Gradignan Cedex, France

³⁵ Department of Physics, Center for Cosmology and Astro-Particle Physics, The Ohio State University, Columbus, OH 43210, USA

³⁶ Science Institute, University of Iceland, IS-107 Reykjavik, Iceland

³⁷ College of Science, Ibaraki University, 2-1-1, Bunkyo, Mito 310-8512, Japan

- ³⁸ Research Institute for Science and Engineering, Waseda University, 3-4-1, Okubo, Shinjuku, Tokyo 169-8555, Japan
³⁹ CNRS, IRAP, F-31028 Toulouse cedex 4, France
⁴⁰ GAHEC, Université de Toulouse, UPS-OMP, IRAP, Toulouse, France
⁴¹ Department of Physics and Department of Astronomy, University of Maryland, College Park, MD 20742, USA
⁴² Center for Research and Exploration in Space Science and Technology (CREST) and NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA
⁴³ Istituto Nazionale di Fisica Nucleare, Sezione di Roma “Tor Vergata”, I-00133 Roma, Italy
⁴⁴ Department of Physics, Boise State University, Boise, ID 83725, USA
⁴⁵ Institute of Space and Astronautical Science, JAXA, 3-1-1 Yoshinodai, Chuo-ku, Sagami-hara, Kanagawa 252-5210, Japan
⁴⁶ Hiroshima Astrophysical Science Center, Hiroshima University, Higashi-Hiroshima, Hiroshima 739-8526, Japan
⁴⁷ Max-Planck Institut für extraterrestrische Physik, 85748 Garching, Germany
⁴⁸ Department of Physics and Astronomy, University of Denver, Denver, CO 80208, USA
⁴⁹ Max-Planck-Institut für Physik, D-80805 München, Germany
⁵⁰ Center for earth Observing and Space Research, College of Science, George Mason University, Fairfax, VA 22030, USA
⁵¹ Osservatorio Astronomico di Roma, I-00040 Monte Porzio Catone (Roma), Italy
⁵² Institut für Astro- und Teilchenphysik and Institut für Theoretische Physik, Leopold-Franzens-Universität Innsbruck, A-6020 Innsbruck, Austria
⁵³ Max-Planck-Institut für Kernphysik, D-69029 Heidelberg, Germany
⁵⁴ Space Sciences Division, NASA Ames Research Center, Moffett Field, CA 94035-1000, USA
⁵⁵ NYCB Real-Time Computing Inc., Lattingtown, NY 11560-1025, USA
⁵⁶ Department of Chemistry and Physics, Purdue University Calumet, Hammond, IN 46323-2094, USA
⁵⁷ Solar-Terrestrial Environment Laboratory, Nagoya University, Nagoya 464-8601, Japan
⁵⁸ Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain
⁵⁹ Consorzio Interuniversitario per la Fisica Spaziale (CIFS), I-10133 Torino, Italy
⁶⁰ Dipartimento di Fisica, Università di Roma “Tor Vergata”, I-00133 Roma, Italy
⁶¹ Praxis Inc., Alexandria, VA 22303

Received 2015 April 28; accepted 2015 May 6; published 2015 June 12

The code developed for the Likelihood-Ratio (LR) method used in the counterpart association procedure of the 2LAC catalog and described in Section 3.2 of the published paper contained an error in the epoch of the celestial coordinates used in the sky simulations. After the cross correlations, which were performed in the J2000.0 epoch, the coordinates of the fake sources were erroneously precessed to B1950.0. This affected the evaluation of the LR values of the fake skies and in turn the computation of the reliability function $R(LR_{ij})$. The reliability curves were shifted to lower LR, resulting in higher association probabilities at a given LR. The corrected entries for Tables 1 (showing the LR critical value LR_c , i.e., the threshold where the reliability becomes greater than 80% for the different surveys) and 2 (comparing the results of the different association methods) are given below. The PMN survey has been removed since, with the corrected coordinate epoch, it does not bring any new association on its own.

In total, 88 former 2LAC sources have corrected association probabilities below 0.8. These are widely distributed in Galactic latitude. A comparison between the initial and corrected census is given in Table 3. The revised 2LAC lists 929 sources with Galactic latitude $|b| > 10^\circ$, with 10 double associations. The revised 2LAC Clean Sample now includes 827 sources (instead of 886) divided into 303 FSRQs, 381 BL Lacs, 124 blazars of unknown type, and 19 non-blazar AGNs. A total of 544 sources are now associated by all three association methods used in the 2LAC work, 507 being in the Clean 2LAC Sample.

Three non-blazar sources, formerly associated in the 2LAC catalog, have dropped off the revised 2LAC list: Fornax A, PKS 0943–73, and ESO 323–77. We also note that 2FGL J0114.7+1326 was erroneously associated, due to a typographical error, with the BL Lac GB6 J0114+1325, while the correct association is with the FSRQ GB6 J0115+1324. That association is now reported in the revised version of 2LAC.

Table 1
Initial and Corrected Values of LR_c for the Catalogs Used for 2LAC Associations

Survey	initial log LR_c	corrected log LR_c
NVSS	−0.28	2.08
SUMSS	0.79	1.92
RASS	1.71	3.03
AT20G	2.91	6.20

Table 2
Comparison of Association Methods (Correction of Table 2 in 2LAC)

Sample	Total	N_{false}	Bayesian	N_{false}	N_S	LR	N_{false}	N_S	$\log N - \log S$	N_{false}	N_S
All	929	18.5	846	12.5	84	643	75.5	26	763	22.7	38
Clean Sample	827	14.7	754	9.1	64	594	69.0	24	691	19.1	32

⁶² Resident at Naval Research Laboratory, Washington, DC 20375, USA.

⁶³ Royal Swedish Academy of Science Research Fellow, funded by a grant from the K. A. Wallenberg Foundation.

⁶⁴ NASA Postdoctoral Program Fellow, USA.

Table 3
Comparison of Association Results between Initial and Corrected 2LAC Catalogs

Sample	2FGL sources ass. with AGNs	AGNs in 2FGL	2LAC	AGNs at $ b < 10^\circ$	Clean Sample
Initial	1095	1121	1017	104	886
Corrected	1019	1029	929	100	827
Sources affected	76	92	88	4	59