

CURRICULUM VITAE

PERSONAL DATA

- **Full name:** Baylie Damtie Yeshita
- **Date and place of birth:** 27-10-1974, Debre Markos
- **Sex:** Male
- **Citizen:** Ethiopian

EDUCATION

- PhD in Physics from University of Oulu, Finland, May 12, 2004.
- MSc in Physics from University of Tromsø, Norway, July 16, 1999.
- BSc in Physics from University of Addis Ababa, Ethiopia, April 2, 1996.

EMPLOYMENT

- Adj. Professor of Physics, Addis Ababa University, Ethiopia: Sept. 2004-present.
- Ass. Professor of Physics, Bahir Dar University, Ethiopia: Sept. 2004-present.
- Research scientist, University of Oulu, Finland: Apr. 2004-present (every summer only)
- Researcher, University of Oulu, Finland: Jan. 2000-Apr. 2004.
- Researcher, EISCAT(European Incoherent SCATter) Radar Data Laboratory, Finland: Sept. 1999-Dec. 1999.
- Research assistant, University of Tromsø, Norway: July. 1999-Aug. 1999.
- Graduate assistant, University of Bahir Dar, Ethiopia: Aug. 1996-Aug. 1997.
- Science educator, British Council, Ethiopia: May-July. 1996.
- Research assistant, University of Addis Ababa, Institute of Educational Research (IER), Ethiopia: April-May. 1996

MANAGEMENT AND LEADERSHIP EXPERIENCE

- Interim Vice President, African Geospace Society, June 2008- present
- National IHY coordinator, Sept. 2006-present.
- Head, Washera Geospace and Radar Science Laboratory, June 2007-Present.
- Dean of the School of Graduate Studies at Bahir Dar University and member of the Senate, June. 2005-June 2009.
- Member of Ethiopian National Graduate Council, Jun. 2007-2008.
- Chairman, Physics Department, Bahir Dar University, Sept. 2004-Jun. 2005.

MAIN RESEARCH INTEREST

- Radar waveform analysis and design with special emphasis on atmospheric radar systems
- Ionospheric physics.
- Signal processing and mathematical inversion methods
- GPS system analysis and software radio technology

PUBLICATIONS

Original papers in international journals

1. Damtie, B. and Lehtinen, MS., Comparison of the performance of different radar pulse compression techniques in an incoherent scatter radar measurement, *Ann. Geophys.*, 27, 797-806, 2009.
2. Lehtinen, MS., Damtie, B., Piironen, P., and Orispää, M., Perfect and almost perfect pulse compression codes for range spread radar targets, *Inverse Problems and Imaging (IPI)*, 465 - 486, Vol. 3 (3) , 2009.
3. Damtie, B., Lehtinen, MS., Orispää, M., and Vierinen, J., Mismatched Filtering of Aperiodic Quadriphase Codes, *IEEE Transactions on Information Theory*, Vol.54 (4), 1742-1749, 2008.
4. Kassa, T. and Damtie, B., Impacts of computer Simulation on Students Achievement, Group interaction and Attitude in Direct Current Circuits, *The Ethiopian Journal of Higher Education (EJHE)*, Vol. 4 No. 1, 2007.
5. Uozumi, T.; Yumoto, K.; Kitamura, K.; Abe, S.; Kakinami, Y.; Shinohara, M.; Yoshikawa, A.; Kawano, H.; Ueno, T.; Tokunaga, T.; McNamara, D.; Ishituka, J. K.; Dutra, S. L. G.; Damtie, B.; Doumbia, V.; Obrou, O.; Rabiou, A. B.; Adimula, I. A.; Othman, M.; Fairos, M.; Otadoy, R. E. S.; Magdas Group, A new index to monitor temporal and long-term variations of the equatorial electrojet by MAGDAS/CPMN real-time data: EE-Index, *Earth, Planets and Space*, Volume 60, 785-790, 2008.

6. Damtie, B., Lehtinen, MS., Orispää, M., and Vierinen, J., Optimal long binary phase code-mismatched filter pairs with applications to ionospheric radars, *Bull. Astr. Soc. India*, 35, 619623, 2007.
7. Damtie, B., T. Bösinger, I.G. Usoskin, Establishing a cosmic ray station and other space research facilities in Ethiopia, *African Skies*, 10, 29-32, 2006.
8. Damtie, B., Lehtinen, MS. and Nygrén, T., Decoding of Barker-coded incoherent scatter measurements by means of stochastic inversion, *Ann. Geophysicae*, 22, 3-13, 2004.
9. Lehtinen, MS., Damtie, B., and Nygrén, T., Optimal binary phase code and sidelobe-free decoding filter pairs with application to incoherent scatter radar, *Ann. Geophysicae*, 22, 1623-1632, 2004.
10. Damtie, B., Nygrén, T., Lehtinen, MS., and Huuskonen, A., High resolution observations of sporadic-E layers within the polar cap ionosphere using a new incoherent scatter radar experiment, *Ann. Geophysicae*, 20, 1429-1438, 2002.
11. Lehtinen, M., Markkanen, J., Väänänen, A., Huuskonen, A., Damtie, B., Nygren, T., Rahkola, J., A new incoherent scatter technique in the EISCAT Svalbard Radar, *Radio Sci.*, 37(3), 10.1029/2001RS002518, 2002.
12. Damtie, B., Lehtinen, M.S., Huuskonen, A., Nygrén, T. and Väänänen, A., A modern data acquisition and analysis method for the EISCAT incoherent scatter radars, *Proceedings of XXVIIth Triennial General Assembly of the International Union of Radio Science*, 17-24 August, 2002, Maastricht, the Netherlands.

Selected conference presentations

1. Yizengaw, Y., Moldwin, M., Mebrahtu, A., Damtie, B., Pfaff, R. F., Zesta, E., and Valadares, C., Equatorial ionospheric electrodynamic observations in the African and American longitudinal sectors, to be presented in 2009 AGU Fall Meeting, 14-18 December, San Francisco, California, USA.
2. Damtie, B. and Lehtinen, MS., Estimating an incoherent scatter radar signal by using an adaptive filtering technique, 14th International EISCAT Workshop, August 3- 7, 2009, Troms, Norway.
3. Damtie, B. and Lehtinen, MS., A method of finding radar waveforms suitable for range spread radar targets, IHY-Africa/SCINDA 2009 Workshop, June 7- 12, 2009, Livingstone, Zambia.
4. Dagne, Y., Damtie, B., MATLAB-based software for analyzing and visualizing raw data from SCINDA GPS receiving systems, IHY-Africa/SCINDA 2009 Workshop, June 7- 12, 2009, Livingstone, Zambia.
5. E. Yizengaw, M. Moldwin, A. Mebrahtu, B. Damtie, F. Anad, and C. Mbane Biouele, AMBER magnetometer array and the equatorial electrodynamic, IHY-Africa/SCINDA 2009 Workshop, June 7- 12, 2009, Livingstone, Zambia.
6. A. B. Rabiou, B. Damtie, V. U. Chukwuma, O. K. Obrou, Introducing the African Geospace Society, IHY-Africa/SCINDA 2009 Workshop, June 7- 12, 2009, Livingstone, Zambia.

7. Nigussie, M., Damtie, B., Yizengaw, E., and Mebrahtu, A., Temporal characteristics of daytime equatorial electrojet at Ethiopian longitudinal sector inferred from amber and intermagnet data, IHY-Africa/SCINDA 2009 Workshop, June 7- 12, 2009, Livingstone, Zambia.
8. G. Mengistu, E. Shume, K. Groves, and B. Damtie, TEC variations, phases of peak TEC and electron density profile during the period of December 2007-December, 2008, near the equatorial ionospheric anomaly trough region in Ethiopia, IHY-Africa/SCINDA 2009 Workshop, June 7- 12, 2009, Livingstone, Zambia.
9. A. B. Rabiou, K. Yumoto, Y. Yamazaki, A. I. Adimula, L. B. Kolawole, O. M. Osinowo, B. Damtie, P. Baki, G. Kianji, MAGDAS/CPMN Group, Study of Behaviour of Equatorial Electrojet Over West and East Africa from MAGDAS Observations, IHY-Africa/SCINDA 2009 Workshop, June 7- 12, 2009, Livingstone, Zambia.
10. Yizengaw, E., M. B. Moldwin, A. Mebrahtu, R. F. Pfaff, E. Zesta, and B. Damtie (2008), Equatorial Electrojet Observations in the African Continent, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract SA11A-1491.
11. K.M. Groves, S. Basu, S. Basu, C.S. Carrano, I. Mengistu, J. Pimenta-Lima, B. Rabiou, O.Obrou, B. Damtie, G. Mengistu, P. Baki, GPS observations of the ionosphere in Africa: First results from collaborations under the United Nations International Heliophysical year basic space science initiative, The XXIX General Assembly of the International Union of Radio Science (Union Radio Scientifique Internationale-URSI), August 07-16, 2008, Chicago, USA.
12. T. Kassa, B. Damtie, S. Dejene, Virtual teaching aid for basic vector and kinematic operations in high school Physics, The 26th Annual May Seminar, May 9-10, 2008, Bahir Dar University, Ethiopia.
13. E. Shume, B. Damtie, Equatorial electrojet plasma waves, The 26th Annual May Seminar, May 9-10, 2008, Bahir Dar University, Ethiopia.
14. Y., Dagne, B., Damtie, K., Groves, E., Shume, G., Mengistu, Temporal and spatial variation of ionospheric scintillation observed in Ethiopia, The 26th Annual May Seminar, May 9-10, 2008, Bahir Dar University, Ethiopia.
15. M. Nigussie, B. Damtie, K. Yumoto, Temporal and spatial variation of ionospheric scintillation observed in Ethiopia, The 26th Annual May Seminar, May 9-10, 2008, Bahir Dar University, Ethiopia.
16. Baylie Damtie, Markku Lehtinen, and Gizaw Mengistu, An Ionospheric Radar Signal Estimation by Means of an Adaptive Filter, IHY-Africa Space Weather Science and Education Workshop, Nov 12-16, 2007.
17. Kaila, K., T. Bösinger, and B. Damtie, Magneto-optical Ethiopian-Finn Observatory EFO, 33 rd Annual European Meeting on Atmospheric Studies by Optical Methods, Kiruna, 28 Aug -1 Sept, 2006.
18. Baylie Damtie, Tilmann Bösinger, Ilya Usoskin, Establishing Cosmic Ray Station and other space research facilities in Ethiopia, First International Heliophysical Year SCINDA Workshop Cape Verde, July 10-14 2006.

19. Damtie, B., and Lehtinen, M., Incoherent Scatter Radar data analysis by means of inversion, 10th Inverse Days 15th-17th December 2004., Sodankylä Geophysical Observatory, Finland.
20. Damtie, B., Nygrén, T., and Lehtinen, M., Mathematical inversion used as a decoding filter in the analysis of the incoherent scatter radar measurements, Finnish physics days 20-22.3. 2003, University of Helsinki, Finland.
21. Damtie, B., Nygrén, T., and Lehtinen, M., A -Based Signal Receiving and Processing System for Incoherent Scatter Radar, 1st International Conference on Electrical and Computer Engineering (ICECE 2003), Oct. 29-1 Nov., 2003, Bahir Dar University, Ethiopia.
22. Damtie, B., Nygrén, T., and Lehtinen, M., A new method of analyzing Barker-coded incoherent scatter radar experiments, Finnish physics days (14. - 16.3.2002), University of Joensuu, Finland.
23. Damtie, B., Nygrén, T., M. Lehtinen, and A. Huuskonen, Application of stochastic inversion in the EISCAT incoherent scatter radar signal analysis, IX Meeting of Finnish National COSPAR, Oct. 30-Nov 1, 2002, Oulu, Finland.
24. Damtie, B., Nygrén, T., Lehtinen, M., and Huuskonen, A., Application of mathematical inversion in the analysis of range-ambiguous incoherent scatter radar signals, 10th International EISCAT Workshop, 23-27 July 2001, Tokyo, Japan.
25. Lehtinen, M., Markkanen, J., Väänänen, A., Huuskonen, A., Damtie, B., Nygrén, T., Rahkola, J., A new incoherent scatter technique in the EISCAT Svalbard Radar, 10th International EISCAT Workshop, 23-27 July 2001, Tokyo, Japan.
26. Damtie, B., Nygrén, T., Lehtinen, M.S. and Huuskonen, A., Phase error analysis in the EISCAT phase modulation scheme, 3-7 September 2000, The University of Warwick, UK.

Thesis Advising

- Completed theses
 1. Abiyu Zerfu, Filtering Chirp radar waveform without creating unwanted sidelobes, Master thesis in Physics, School of Graduate Studies, Addis Ababa University, Ethiopia (2005).
 2. Desalegn Tadesse, Analysis of interference observed via pulsation magnetometer at Ethio-Finno Observatory EFO, Master thesis in Physics, School of Graduate Studies, Addis Ababa University, Ethiopia (2006).
 3. Adila, Space Debris detection from an incoherent radar measurement by means of mathematical inversion, Master thesis in Physics, School of Graduate Studies, Addis Ababa University, Ethiopia (2006)
 4. Fekadu Admass, Measuring the impulse response of the pulsation magnetometer of Ethio-Finno Observatory at Entoto Mountain by using lightning flashes, Master thesis in Physics, School of Graduate Studies, Addis Ababa University, Ethiopia (2006).

5. Tadesse Terefe, Further development of polar wind modelling, Master thesis in Physics, School of Graduate Studies, Addis Ababa University, Ethiopia (2007).
 6. Kibrom Bayru, Numerical investigation of sporadic-E layers formation in mid-latitude, Master thesis in Physics, School of Graduate Studies, Addis Ababa University, Ethiopia (2007).
 7. Anteneh Bizuayehu, Numerical investigations of different solar wind models, Master thesis in Physics, School of Graduate Studies, Addis Ababa University, Ethiopia (2007).
 8. Tsegaye Kassa, The roles of virtual teaching aids in lieu of real instrument in teaching the concept of DC circuit; the case of Bahir Dar University first year physics major students, Master thesis in Physics Education, School of Graduate Studies, Bahir Dar University, Ethiopia (2007).
 9. Melesew Negussie, Three-dimensional virtual system for teachings the physics of the Earths Mangetic field, Master thesis in Physics Education, School of Graduate Studies, Bahir Dar University, Ethiopia (2008).
 10. Dessalegn Ayehu, Ionospheric scintillation measurements observed in Ethiopia Region, Master thesis in Physics, School of Graduate Studies, Addis Ababa University, Ethiopia (2008).
 11. Yihenew , A virtual system for demonstration stochastic inversion using real rainfall data around Lake Tana, Master thesis in Physics, Master thesis in Physics Education, School of Graduate Studies, Bahir Dar University, Ethiopia (2009).
- Ongoing theses work (students' name and their research topics)
 1. Tsegaye Kassa, PhD student, Bahir Dar University, Ethiopian-sector ionospheric characterizations and modeling
 2. Dejene Sahlu, MSc student, Bahir Dar University, simulation of weather radar measurements for the Bahir Dar weather conditions
 3. Asebe Geleta , MSc student, Bahir Dar University, inferring weather radar clutter conditions from digital elevation model
 4. Endalkachew Mengistu, MSc student, Bahir Dar University, temporal variations of equatorial electrojet in Ethiopian sector using AMBER
 5. Fasil Tesema, MSc student, Bahir Dar University, Correlation between C/NOFS satellite measurements of ionospheric irregularities and ground-based ionospheric scintillation observations in Ethiopian sector.
 6. Moges Wassie, MSc student, Bahir Dar University, Validation of NeQuick model in Ethiopian sector.
 7. Abiyot Bires, MSc student, Addis Ababa University, characterization of the D-region ionosphere in Ethiopian sector using ground-based VLF observations at Bahir Dar.
 8. Syde Membere, MSc student, Addis Ababa University, Scintillation characterizations using SCINDA stations in Ethiopia.

Research grants and other awards

- 694,000.00 US dollars from the World Bank, establishing operational and research weather radar system at Bahir Dar, Ethiopia (2009-Present).

- 147,240.00 US dollars from the World Bank, establishing Physics Virtual Laboratory at Bahir Dar University (2006-2009).
- 143,878.05 US dollars from the World Bank, strengthening and expanding the Graduate Program at Bahir Dar University (2006-2009).
- 60,000 Euros from the Academy of Finland, establishing an ionospheric monitoring station in Ethiopia (with Dr. Tilmann Bösinger, Dr. Kari Kaila and Dr. Mulugeta Bekele), (2004-2005).
- Letter of Recognition and Admiration from the President of Bahir Dar University, Dr Tsehay Jemberu, for establishing and popularizing space physics in the Bahir Dar University in particular and in Ethiopia in general.
- Awarded gold necklace by the President of Bahir Dar University, Dr Shimelis Haile, for the best presentation at the International Conference on Electrical and Computer Engineering (ICECE-2003), Oct. 29-1 Nov., 2003, Bahir Dar University, Ethiopia.
- A researcher position for PhD, Finnish Graduate School in Space Physics and Astronomy, Department of Physical Sciences, University of Oulu, Finland.
- A full scholarship for MSc. education, Department of Physics, University of Tromsø, Norway.
- A 100 birr (Ethiopian currency) and a 3-day sponsored trip to the city of Awassa (Ethiopia) by the President of Addis Ababa University, Prof. Mogessie Ashenafi, for an outstanding undergraduate academic performance.