



Scientific biography of

Oleg Dubovik

Dr Oleg DUBOVIK specializes in retrievals of aerosol properties from satellite, ground-based, and airborne remote sensing observations. Dr. Dubovik has received his PhD. from Institute of Physics, Minsk, Belarus in 1992. Then, he worked in Japan for two years, participating in ADEOS/ILAS algorithm developments, and nine years in USA at GSFC/NASA research center. Since 2006, Dr. Dubovik works in the Laboratoire d'Optique Atmosphérique, Université Lille, France as CNRS "Research Director". Main scientific accomplishments of Dr. Dubovik include following developments: - aerosol retrieval algorithm for AERONET federated network of ground-based radiometers (<https://aeronet.gsfc.nasa.gov>)- one of pioneering climatologies of absorption and optical properties of ambient tropospheric aerosol; - popular efficient software for modeling scattering by non-spherical aerosol particles. Dr. Dubovik focuses on refinement of methodological aspects of numerical inversion for needs of remote sensing by applying elaborated statistical optimization approach. The developed principles were recently realized GRASP open source algorithm (<https://www.grasp-open.com/>) that can be applied to retrieval detailed aerosol properties from diverse observations including both passive and active observations from satellite or ground. For example, GRASP is used in multiple algorithm development for deriving extended set of parameters from ground-based observations by lidar and radiometer (e.g., in operational processing frame of European ACTRIS infrastructure) satellite observations by POLDER-1,-2,-3, MERIS and AATSR/Envisat, Sentinel -3, -4, -5P, 3MI/EPS-SG, MAP/CO2M, etc.

Dr. Dubovik is (co-) author of 5 book chapters and more than 270 publications in peer-reviewed scientific journals. Dr. Dubovik has 4 first-authored papers have more than 1000 citations each, with total number of citations over 40900 and h-index 94. In 2005, Dr. Dubovik has received NASA Medal for Public Service that recognizes exceptional contributions to NASA mission. In 2010 Dr. Dubovik was elected a fellow of American Geophysical Union.

List of selected publications:

- Dubovik, O., D. Fuertes, P. Litvinov, etc., "A Comprehensive Description of Multi-Term LSM for Applying Multiple a Prior Constraints in Problems of Atmospheric Remote Sensing: GRASP Algorithm, Concept, and Applications", *Front. Remote Sens.* 2:706851. doi: 10.3389/frsen.2021.706851, 2021.
- Dubovik, O., G. Schuster, F. Xu, Y. Hu, H. Boesch, J. Landgraf and Z. Li, "Grand challenges in satellite remote sensing", *Front. Remote Sens.*, 2:619818. doi: 10.3389/frsen.2021.619818, 2021.
- Dubovik, O., Z. Li, M. I. Mishchenko, etc., "Polarimetric remote sensing of atmospheric aerosols: instruments, methodologies, results, and perspectives", *J. Quant. Spectrosc. Radiat. Transfer*, doi.org/10.1016/j.jqsrt.2018.11.024, 474–511, 2019.
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- Dubovik, O., T. Lapyonok, Y. J. Kaufman, M. Chin, P. Ginoux, R. A. Kahn, and A. Sinyuk, Retrieving global aerosol sources from satellites using inverse modeling, *Atmos. Chem. Phys.*, 8, 209–250, 2008.
- Dubovik, O., A. Sinyuk, T. Lapyonok, B. N. Holben, M. Mishchenko, P. Yang, T. F. Eck, H. Volten, O. Munoz, B. Veihelmann, van der Zander, M. Sorokin, and I. Slutsker, Application of light scattering by spheroids for accounting for particle non-sphericity in remote sensing of desert dust, *J. Geophys. Res.*, 111, D11208, doi:10.1029/2005JD006619, 2006.
- Dubovik, O., B. N. Holben, T. F. Eck, A. Smirnov, Y. J. Kaufman, M. D. King, D. Tanré, and I. Slutsker, Variability of absorption and optical properties of key aerosol types observed in world-wide locations, *J. Atmos. Sci.*, 59, 590–608, 2002.
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- Dubovik, O., A. Smirnov, B. N. Holben, M. D. King, Y. J. Kaufman, T. F. Eck, and I. Slutsker, Accuracy assessments of aerosol optical properties retrieved from AERONET Sun and sky-radiance measurements, *J. Geophys. Res.*, 105, 9791–9806, 2000.