

# Brief CV of Professor Costas VAROTSOS



[Climate Research Group](#), Faculty of Physics, Division of Environmental Physics and Meteorology,  
University of Athens, 15784 Athens, Greece  
Tel.: +30 210 7276838, 6977445044,  
E-mail: [covar@phys.uoa.gr](mailto:covar@phys.uoa.gr), [covarots@yahoo.com](mailto:covarots@yahoo.com)

## 1. Carrier in brief

### 1.1 General

- 1980:** B.Sc. in Physics at the Athens University (*born in Patras, Aug. 1956*)
- 1984:** Ph.D in Atmospheric Physics at the Aristotle University of Thessaloniki
- 1985:** **Visiting Research Assistant** at the Clarendon Laboratory Department of Atmospheric Physics, Oxford University, UK.
- 1986-88:** **Assistant Professor** at the Hellenic Naval Academy
- 1989-98:** **Assistant Professor in Atmospheric Physics** at the Faculty of Physics of the National and Kapodistrian University of Athens.
- 1999-2008:** **Associate Professor in Atmospheric Physics** at the Faculty of Physics of the National and Kapodistrian University of Athens.
- 2005:** **Visiting Professor at the University of Maryland**, Dept. of Atmospheric and Oceanic Science, USA.
- 2008:** **Full Professor in Atmospheric Physics** at the Faculty of Physics of the National and Kapodistrian University of Athens.
- 2011-2013:** **Director of the Dept. of Environmental Physics and Meteorology**, Faculty of Physics, University of Athens
- 2014-.....:** **Dean of the School of Sciences (elected)** of the National and Kapodistrian University of Athens.

In 1989 he **established at the Athens University the Laboratory of the Middle and Upper Atmosphere**. This Lab, among others, is routinely operating monitoring stations (of various atmospheric quantities), which belong to International Networks of WMO, UN and EU.

Since 1989 he teaches Atmospheric Physics, Atmospheric Chemistry, Environmental Physics and Chemistry, which are also the main thematic topics of his research interests.

He published **10 international books (monographs)** of **SPRINGER**, **more than 250 research papers** and he contributed **with specific chapters to 6 more international books** in the

fields of Remote Sensing, Atmospheric Physics & Chemistry, and Environmental Change. In addition he **published 5 university books in Greek** on the field of Atmospheric Physics and Chemistry.

He is **Honorary Professor of the Russian Academy of Sciences, Fellow (elected) of the Royal Meteorological Society (Oxford, UK) and full Member (elected) of the European Academy of Natural Sciences (Hanover, Germany)**. He is member of several scientific societies including the American Meteorological Society and the American Geophysical Union.

He coordinated or participated in more than **40 large international research competitive projects**, funded by International Organizations (e.g. European Commission, NATO, WMO).

He has been appointed as **Specialty Chief Editor of "Frontiers in Environmental Science" of the NATURE Publishing Group (since 2013), Editor of the "International Journal of Remote Sensing" of T&F (since 2006), Editor of the "Remote Sensing Letters" of T&F (since 2013), Advisor of the "Environmental Science and Pollution Research" (2007-2009), Guest Editor** of a number of Journals with peer-reviewing system and member of the Editorial board in several International Journals (e.g. Current Chemical Research, Atmospheric Pollution Research, The Scientific World Journal). He was reviewer for the Journal of Geophysical Research, Geophysical Research Letters, Atmospheric Environment, and several other scientific journals. He also served as reviewer of various EU, UN and US Scientific Proposals and Reports.

His papers have received **more than 6,000 citations** from other scientists. In particular, **his contribution to the understanding of the Antarctic ozone hole split in 2002 has been reported by the United Nations Environmental Programme (UNEP)** (<http://www.unep.ch/ozone/pdf/the-southern-hemisphere-ozone-hole-split-2002.pdf>) and by Thomson ISI as "Hot Paper" (<http://www.esi-topics.com/nhp/2006/march-06-CostasVarotsos.html>) in the field of Ecology / Environment. The above-said work has been announced by Press Release of Thomson Scientific and has also been cited by the Polar Icebreakers in a Changing World: An Assessment of U.S. Needs (2006), National Research Council of the National Academies, Washington DC (<http://books.nap.edu/openbook/0309103215/html/R1.html>). Additionally, his contribution to the exploration of the **scaling dynamics in global atmospheric ozone and temperature** has been identified by Thomson-ISI as Hot Paper in the field of Geosciences (<http://archive.sciencewatch.com/dr/erf/2011/11/11augerf/11augerfVaro/>) (Thomson Reuters Science Watch® on Monday, August 1, 2011).

He has been **invited from more than 40 International Conferences, Workshops and European Conferences to give talks** on the disciplines of his research activity.

## 1.2 Research Publications

His research publications could be categorized as follows:

<b>Number of Papers in Refereed Journals</b>	<b>218</b>
<i>In refereed Journals (reported by SCI)</i>	<b>189</b>
<i>In referred Proceedings of Conferences</i>	<b>120</b>

***h-index in Thomson-ISI is 54***

<b>Number of other Publications</b>	
<i>Papers in refereed Journals (not reported by SCI)</i>	<b>29</b>
<i>Papers in refereed Russian Journals</i>	<b>25</b>
<i>Abstracts in Conferences</i>	<b>172</b>
<i>Reports, etc</i>	<b>60</b>

### 1.3 Outstanding contributions to the Atmospheric Science

His publications that triggered a large interest of the international community are the following:

1. Varotsos C.: **The southern hemisphere ozone hole split in 2002**

Environmental Science and Pollution Research 9 (6), 375-376 Nov. 2002.

It was thought, prior to September 2002 that a major stratospheric sudden warming could happen only in the Northern Hemisphere. This paper suggested that both the smaller-sized ozone hole over Antarctica and its splitting into two holes took place due to an unprecedented major stratospheric sudden warming caused by very strong planetary waves propagated in the Southern Hemisphere. This paper was included (after invitation-permission) as the first highlight in **Highlights of United Nations Environmental Programme**: <http://www.unep.ch/ozone/pdf/the-southern-hemisphere-ozone-hole-split-2002.pdf>.

2. Varotsos C.: **What is the lesson from the unprecedented event over Antarctica in 2002?**

Environmental Science and Pollution Research 10 (2), 80-81 2003

The analysis performed in this paper showed that the ozone hole split in 2002 occurred not only in the stratosphere but that it has also been extended into the lower altitudes (upper troposphere)

3. Varotsos C.: **The extraordinary events of the major, sudden stratospheric warming, the diminutive Antarctic ozone hole, and its split in 2002**

Environmental Science and Pollution Research 11 (6), 405-411, 2004

This follow-up paper on this subject has been identified by Thomson-ISI to be one of the most cited recent papers in the field of Environment/Ecology (see his commentary at: <http://esi-topics.com/> and <http://esi-topics.com/nhp/2006/march-06-CostasVarotsos.html>).

4. Varotsos C.: **Power-law correlations in column ozone over Antarctica.** International Journal of Remote Sensing, Vol. 26, 3333–3342, 2005.

This paper shows that processes based on the nonlinear nature of the atmospheric dynamics could probably address the question “What caused the southern hemisphere to exhibit very strong planetary waves in 2002?” The evidence is based on the new finding that the fluctuations of the total ozone content over Antarctica exhibit long-range correlations

5. Varotsos C., Ondov J., Efstathiou M.: **Scaling properties of air pollution in Athens, Greece and Baltimore, Maryland.** Atmospheric Environment, 39 (22), 4041-4047, 2005.

This paper suggests that air pollution exhibits scaling effect. More precisely, persistent long-range power-law correlations in the fluctuations of daytime and nighttime ozone and nitrogen oxide concentrations with lag times ranging from 4 days to 5 years were detected with more intense correlations (“stronger memory”) during daytime. In addition, persistent long-range power-law correlations were also detected for PM10 and PM2.5 fluctuations in Athens and East Baltimore.

6. Varotsos C., Kirk-Davidoff D.: **Long-memory processes in ozone and temperature variations at the region 60 degrees S-60 degrees N.** Atmospheric Chemistry and Physics, 6, 4093-4100, 2006.

This paper has been recently identified by Thomson-ISI to be one of the most cited recent papers in the field of Geosciences (Thomson Reuters *ScienceWatch*<sup>®</sup> website on Monday, August 1, 2011, at the following link: <http://sciencewatch.com/dr/erf/2011/11augerf/11augerfVaro/>.

7. Cracknell A.P., Varotsos C.A.: **New aspects of global climate-dynamics research and remote sensing**. International Journal of Remote Sensing, Vol. 32, 579-600, 2011.

This paper describes how new research tools in physics may be used to achieve a better understanding of the variability of the climate system.

**The “Weather” (journal of the Royal Meteorological Society) commented on this paper: “New tools for global climate-dynamics research”, Weather – October 2011, Vol. 66, No. 10, doi:10.1002/wea.712.**

8. Varotsos, C.A., Tzani, C.: **A new tool for the study of the ozone hole dynamics over Antarctica**. Atmospheric Environment, 47, 428-434, 2012.

This paper has tackled what is described as the truism that time poses one of the greatest challenges to climate evolution. It suggests that rather than analyzing various climate parameters in the conventional time domain, a new not-continuous time domain termed natural time should be used. Then novel dynamical features hidden behind time series can emerge and impending major events in climate system can be predicted.

**The “Weather” (journal of the Royal Meteorological Society) commented on this paper: “A new time domain for prediction of impending major climate events”, Weather – February 2012, Vol. 67, No. 2, doi:10.1002/wea.1848.**

**In addition, among his other publications, the following papers have mostly attracted the interest of the international community:**

1. Von der Gathen P., et al: **Observational evidence for chemical ozone depletion over the Arctic in winter 1991-92**, Nature, Vol. 375, 131-134, 1995.
2. Chandra S., Varotsos C. and Flynn L.E.: **The mid-latitude total ozone trends in the northern hemisphere**, Geophysical Research Letters, Vol. 23, No. 5, 555-558, 1996.
3. M. Rex, P., et al: **In-situ measurements of stratospheric ozone depletion rates in the Arctic Winter 1991/92: A Lagrangian Approach**, Journal of Geophysical Research., Vol. 103, D5, 5843-5853, 1998.
4. Ziemke J.R., Chandra S., Herman J. and Varotsos C.: **Erythemally weighted UV trends over northern latitudes derived from Nimbus 7 TOMS measurements**, Journal of Geophysical Research, Vol. 105, D6, 7373-7382, 2000.
5. Schulz A., et al: **Match observations in the Arctic winter 1996/97: High stratospheric ozone loss rates correlate with low temperatures deep inside the polar vortex**, Geophysical Research Letter, Vol. 27, No 02, p.205-208, 2000.
6. Varotsos C., Kondratyev K.Y. and Cracknell A.P.: **New evidence for ozone depletion over Athens, Greece**, International Journal of Remote Sensing, Vol. 21, No. 15, 2951-2955, 2000.
7. Schulz A., et al: **Arctic ozone loss in threshold conditions: Match observations in 97/98 and 98/99**, Journal of Geophysical Research, Vol. 106, D 7495-7503, 2001.
8. Varotsos C., Kondratyev K.Y. and Efsthathiou M.: **On the seasonal variation of the surface ozone in Athens, Greece**, Atmospheric Environment, Vol. 35, 315-320, 2001.
9. Varotsos C., Cartalis C., Vlamakis A., Tzani C. and Keramitsoglou I.: **The long-term coupling between column ozone and tropopause properties**, Journal of Climate, 17 (19), 3843-3854, 2004.
10. Varotsos C.: **Atmospheric pollution and remote sensing: implications for the Southern hemisphere ozone hole split in 2002 and the Northern mid-latitude ozone trend**, Advances in Space Research, 33 (3), 249-253, 2004.
11. Varotsos C.: **Power-law correlations in column ozone over Antarctica**, International Journal of Remote Sensing, Vol. 26, No, 16, 3333-3342, 2005.

#### 1.4 Review Articles, Editorials, Commentaries

1. Kondratyev K.Y. and Varotsos C.A.: **Global total ozone dynamics. Impact on surface solar ultraviolet radiation variability and ecosystems. Part I: Global ozone dynamics and environmental safety**, Environmental Science and Pollution Research, 3 (3), 153-157, 1996.
2. Kondratyev K.Y. and Varotsos C.A.: **Global total ozone dynamics, its impact on surface solar ultraviolet radiation variability and ecosystems. Part II: Dynamics of Atmospheric Chemical Composition: The Role of Remote Sensing**, Environmental Science and Pollution Research, 3 (4), 205-209, 1996.
3. Kondratyev K.Y. and Varotsos C.: **A Review on Greenhouse Effect and Ozone Dynamics over Greece**, NATO ASI Series, Vol. I, 53. Atmospheric Ozone Dynamics Observations in the Mediterranean Region. Springer-Verlag Berlin Heidelberg, 175-228, 1997.
4. Kondratyev K.Y. and Varotsos C.: **Global Tropospheric Ozone Dynamics, Part I: Tropospheric Ozone Precursors**, Environmental Science and Pollution Res, 8 (1), 57-62, 2001.
5. Kondratyev K.Y. and Varotsos C.: **Global Tropospheric Ozone Dynamics, Part II: Numerical Modelling of Tropospheric Ozone Variability**, Environmental Science and Pollution Research, 8 (2), 113-120, 2001.
6. Kondratyev K. Y. and Varotsos C.: **Remote sensing and global tropospheric ozone observed dynamics**, International Journal of Remote Sensing, Vol. 23, No. 1, 159-178, 2002.
7. Varotsos C.: **The Extraordinary Events of the Major, Sudden Stratospheric Warming, the Diminutive Antarctic Ozone Hole, and its Split in 2002**, Environmental Science and Pollution Research, 11 (6), 405-411, 2004.
8. Cracknell A.P. and Varotsos C.A.: **Fifty years after the first artificial satellite: from Sputnik 1 to ENVISAT**. International Journal of Remote Sensing, Vol. 28, No. 10, 2071-2072, 2007.
9. Cracknell A.P. and Varotsos C.A.: **The Antarctic 2006 ozone hole**, International Journal of Remote Sensing, Vol. 28, No. 1-2, 1-2, 2007.
10. Cracknell A.P. and Varotsos C.A.: **The IPCC Fourth Assessment Report and the fiftieth anniversary of Sputnik**. Environmental Science and Pollution Research, 14 (6), 384-387, 2007.
11. Varotsos C. A.: **The 20th anniversary of the Montreal Protocol and the unexplainable 60% of ozone loss**. Environmental Science and Pollution Research, 15 (6), 448-449, 2008.
12. Cracknell A.P. and Varotsos C.A.: **Editorial comment - the Montreal Protocol**, International Journal of Remote Sensing, Vol. 29, No. 19, 5455-5459, 2008.
13. Varotsos C., Tzanis C. and Cracknell A.P.: **The enhanced deterioration of the cultural heritage monuments due to air pollution**. Environmental Science and Pollution Research, 16 (5), 590-592, 2009.
14. Cracknell A.P. and Varotsos C.A.: **The contribution of remote sensing to the implementation of the Montreal Protocol and the monitoring of its success**. International Journal of Remote Sensing, 30, No. 15-16, 3853-3873, 2009.
15. Cracknell A.P. and Varotsos C.A.: **New aspects of global climate-dynamics research and remote sensing**. International Journal of Remote Sensing, 32, No. 3, 579-600, 2011.

#### 1.5 Invited Papers in International Journals

1. Varotsos C.: **Climate Change problems and carbon Dioxide Emissions: Expecting 'Rio+10'**. Editorial in ESPR - Environmental Science and Pollution Research 9 (2), 97-98, 2002. ("Feature").
2. Varotsos C.: **Why did a "no-ozone-hole" episode occur in Antarctica? EOS Transactions**, 84(19), 183, 2003 ("Section News, Atmospheric Sciences"). (EOS Transactions is the high peer-review and official journal of the American Geophysical Union).

3. Varotsos C.: **Major sudden warming and strange twist of the ozone hole over Antarctica in 2002.** Europhysics News 34/2, 66-67, 2003 (“**Feature**”).
4. Varotsos C.: **On the unprecedented event of the Antarctic ozone hole split in 2002.** World Resource Review 15:2, 176-184, 2003.
5. Varotsos C.: **News on the Antarctic Ozone Hole.** Environmental Science and Pollution Research, 12 (6): 322-322, 2005 (**Commentary**).

**Note:**

The invitations to write the above-mentioned articles 2, 3, 4, 5 reached him after the publication of the first article of the next paragraph, which has been cited more than 60 times in the last three years. The article 5 was recently accommodated in EU News Alert (DG Environment).

## 1.6 Participation in Large Research Projects

1. **Tropospheric Ozone Research (TOR) - EUROTRAC I** (PI), 1989-1995.
2. **Vertical ozone profile over Athens.** (Project leader) Athens, Greece - Julich, Germany 1990-1992.
3. **Stratosphere-Troposphere Ozone Exchange (TOASTE I).** (Member) EU , 1990-1992.
4. **Intercomparison of Dobson ozone spectrophotometers.** (Member) World Meteorological Organisation, Arosa, Switzerland 7-8/1990.
5. **Global Atmosphere Watch (World Ozone Data Centre)** (Member) Canada 1990-2000.
6. **Remote Sensing and Global Climate Change.** (Member), NATO, 1991-1995.
7. **European Arctic Stratospheric Ozone Experiment (EASOE).** (Member) EU, 1991-1992.
8. **Remote Sensing and Global Climate Change.** (Member), NATO, Dundee, Scotland 1991-1995.
9. **CFC's and ozone depletion.** (Project leader) EU, Athens, 1992-1994.
10. **Second European Stratospheric Arctic and Mid-latitude Experiment (SESAME).** (PI), EU, 1993-1995.
11. **Transport of ozone and Stratosphere-Troposphere exchange at the south Europe.** (PI), Greece - Italy 1994-1995.
12. **Special Evaluation of the vertical ozone distribution.** (PI) Greece (UoA)-Germany (AWI) Bilateral Research Programme, 1994-1995.
13. **Remote Sensing, Image Processing and Applications.** (Member), EU, 1993-1995.
14. **Surface UVR and ozone content as indicators of environmental quality: case studies of Athens, Hamburg, Dundee and St. Petersburg.** (Project leader), INTAS, EU, 1995-1998.
15. **OSDOC (Quality Control and Homogeneous Ozonesonde Database),** (Member) 1996-1999.
16. **STAAARTE** (Member) Athens 1997.
17. **Radiation Field in the Troposphere (RAFT).** EU (Project leader) Athens 1997-1998.
18. **WMO Int. Intercomparison of the Dobson Spectrophotometers.** (Project leader) Greece 1997.
19. **MATCH** (PI) EU, 1994-2013.
20. **THESEO-O<sub>3</sub>LOSS** (PI), EU, 1997-2000.
21. **Tropospheric Ozone Research (TOR-2, EUROTRAC),** (PI) 1998-2002.
22. **EURASER-EUFAR** project (EUropean Fleet for Airbone Research) Infrastructure Cooperation Network of the **European Commission HPRI programme** under FP5/FP6 (2000-2005).
23. **Bio-dosimeter and biologically- effective solar ultraviolet radiation.** Bilateral Research Programme (Greece-Ukraine), 2001-2003 (Project leader).
24. **Model for multi-pollutant impact and assessment of threshold levels for cultural heritage (MULTI-ASSESS).** Fifth Framework Programme Key Action City of Tomorrow and Cultural Heritage within the Energy, Environment and Sustainable Development 2001-2004 (PI).

25. **Quantitative Understanding of Ozone losses by Bipolar Investigations (QUOBI)**, funded by the European Commission as part of the Stratospheric Ozone LOSS (SOLO) cluster coordinated by the European Ozone Research Coordinating Unit (EORCU), 2002-2004 (PI).
26. **Validation of International Satellites and Study of Ozone Loss (VINTERSOL)** funded by the European Commission 2002-2004 (PI).
27. **Stratospheric-Climate Links with Emphasis on the Upper Troposphere and Lower Stratosphere (SCOUT-O3)**. EU, 2004-2009, (PI).
28. **ENVISAT/ SCIAMACHY/ SCIAVAL** EU, , 2001-2007, (PI).
29. **International Polar Year 2007-2008 (Ozone Layer and UVB Radiation) (ORACLE-O3)** (PI).
30. **UN ECE ICP (Convention on Long-Range Transboundary Air Pollution) Materials (Trend Exposure) International co-operative Programme on Effects on Materials, including Historic and Cultural Monuments**, 2005-2013, (PI).
31. **Total ozone and Planetary waves 2006-2008**. Bilateral Research Programme (Greece- Ukraine), 2006-2008 (Project leader).
32. **Elaboration of Technologies for Diagnosis of Tropical Hurricanes Beginning in Oceans with Remote Sensing Methods**. ISTC (International Science and Technology Center) Project No. 3827, 2007-2012, (PI).
33. **Non-linear Dynamics of the Remotely Sensed Atmospheric Data and Modelling; Implications to Climate & Earth System Science; Case studies for Athens (Greece) and Beijing (China)**. DRAGON 3, Project Id. 10529, 2013-2016.

**Note:**

The new findings derived from the SCOUT-O3 Project have been commented on by NATURE in section "News" (NATUREIVOL 435, p6 | 5 MAY 2005 <http://www.nature.com/nature>)

## 1.7 Teaching experience

### 1986-1988

- "Dynamics of Meteorology" Hellenic Naval Academy.
- "Selective Chapters in Physics" Hellenic Naval Academy.

### 1989-1999

- "Physical Climatology" Dept. of Physics, University of Athens
- "Physical Meteorology" Dept. of Mathematics, University of Athens

### 1989-present

- "Physics of the Upper Atmosphere" Dept. of Physics, University of Athens
- Labs of the "Physics of the Atmosphere"

### 1992-1994

- "The Physics of the Atmospheric Ozone" European Association for Environmental Management Education, Master's Degree.

### 1996-present

- "Environmental Chemistry" Dept. of Physics, University of Athens

### 1997-present

- "Physico-Chemistry of the Atmosphere" Dept. of Physics, University of Athens
- "Introduction to the Atmospheric Physics" Dept. of Physics, University of Athens
- "Physical Climatology" Dept. of Physics, University of Athens

He has also participated in several *Advanced Study Institutes, Seminars* etc. delivering lectures on the topics of Atmospheric Physics, Atmospheric Chemistry and Environmental Physics and Chemistry (e.g. see 1, 2, 3 international books in section 2)

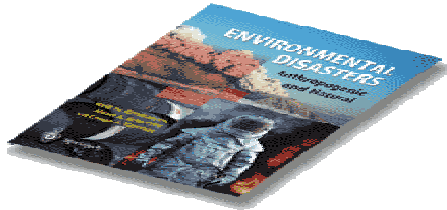
## 2. International Books

### 2.1 Monographs of SPRINGER – Praxis (after 6 review-reports each)

1. **ATMOSPHERIC OZONE VARIABILITY: Implications for Climate Change, Human Health and Ecosystems.** K. Ya. Kondratyev, C. A. Varotsos, SPRINGER - Praxis, 624 pages, ISBN: 1 85233 635 8, 2000.



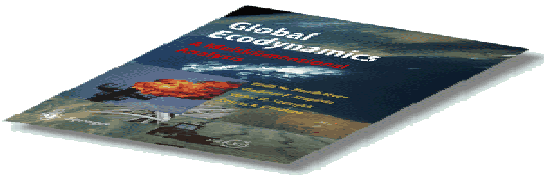
2. **ENVIRONMENTAL DISASTERS: Anthropogenic and Natural.** K. Ya. Kondratyev, A. A. Grigoryev, C. A. Varotsos, SPRINGER - Praxis, 528 pages, ISBN: 3-54043-303-1, 2002.



3. **GLOBAL CARBON CYCLE AND CLIMATE CHANGE.** K. Ya. Kondratyev, V. F. Krapivin, C. A. Varotsos, SPRINGER - Praxis, 392 pages, ISBN: 3-540-00809-8, 2003.



4. **GLOBAL ECODYNAMICS: A Multidimensional Analysis.** K. Ya. Kondratyev, V. F. Krapivin, P. Savinykh, C. A. Varotsos, SPRINGER - Praxis, 723 pages, ISBN: 3-540-20476-8, 2004.



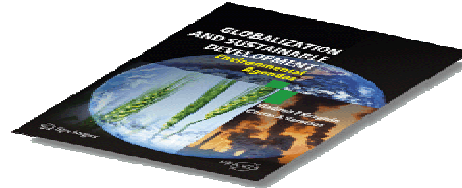
5. **ATMOSPHERIC AEROSOL PROPERTIES: Formation Processes, and Impacts.** K. Ya. Kondratyev, L. S. Ivlev, V. F. Krapivin, C. A. Varotsos, SPRINGER–Praxis, 608pages, ISBN: 3-540-26263-6, 2005.



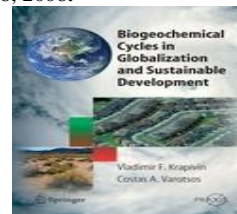
6. **NATURAL DISASTERS AS INTERACTIVE COMPONENTS OF GLOBAL ECODYNAMICS.** K. Ya. Kondratyev, V. F. Krapivin, C. A. Varotsos, SPRINGER –Praxis, 616 pages, ISBN: 978-3-540-31344-1, 2006.



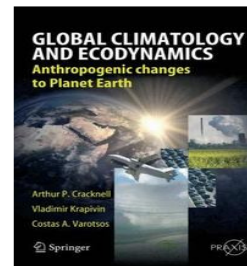
7. **GLOBALIZATION AND SUSTAINABLE DEVELOPMENT Environmental Agendas** V. F. Krapivin, C. A. Varotsos, SPRINGER –Praxis, 336 pages, ISBN: 978-3-540-70661-8, 2007.



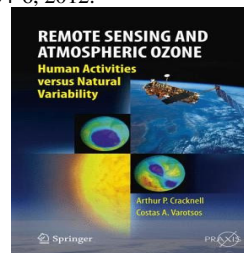
8. **BIOGEOCHEMICAL CYCLES IN GLOBALIZATION AND SUSTAINABLE DEVELOPMENT** V. F. Krapivin, C. A. Varotsos, SPRINGER –Praxis, 600 pages, ISBN: 978-3-540-75439-8, 2008.



9. **GLOBAL CLIMATOLOGY AND ECODYNAMICS - Anthropogenic driven changes to Planet Earth,** A. P. Cracknell, V. F. Krapivin, C. A. Varotsos, SPRINGER – Praxis, 566 pages, ISBN: 978-3-540-78208-7, 2008.



10. **REMOTE SENSING AND ATMOSPHERIC OZONE: Human activities versus natural variability,** A. P. Cracknell, C. A. Varotsos, SPRINGER –Praxis, 662 pages, ISBN: 978-3-642-10334-6, 2012.



11. **NEW ECOINFORMATICS TOOLS IN ENVIRONMENTAL SCIENCE** V. F. Krapivin, C. A. Varotsos, VY Soldatov SPRINGER (in press).



## 2.2 Contributions with chapters to International Books

1. **REMOTE SENSING AND GLOBAL CLIMATE CHANGE.** Contribution with the Chapter “*Atmospheric Ozone Concentration Measurements*, by C. Varotsos, edited by R. Vaughan and A.P. Cracknell, NATO ASI Series, I, Global Environmental Change, Vol. 24, 253-268, 1994.
2. **THE DETERMINATION OF GEOPHYSICAL PARAMETERS FROM SPACE.** Contribution with the Chapter “*Atmospheric Ozone Concentration: Satellite and ground-based measurements*”, by C. Varotsos, Editions of the Institute of Physics Publishing Bristol and Philadelphia, Edited by N.E. Fancey, I. Gardiner and R.A. Vaughan, Vol. 24, 261-282, 1996.
3. **ATMOSPHERIC OZONE DYNAMICS. OBSERVATIONS IN THE MEDITERRANEAN REGION.** by C. Varotsos NATO ASI Series, Global Environmental Change Vol. 53, Springer-Verlag Heidelberg, 1997.
4. **TROPOSPHERIC OZONE RESEARCH. TROPOSPHERIC OZONE IN THE REGIONAL AND SUB-REGIONAL CONTEXT.** Contribution to Chapters: 2, 5 and 8. Edited by Oystein Hov, Vol.6, Published by Springer Verlag, Berlin, Heidelberg and New York, September 1997.
5. **PHYSICAL PROCESSES IN THE COASTAL ZONE: COMPUTER MODELLING AND REMOTE SENSING.** Contribution with the Chapter “*Dynamics of Trace Gases, Solar Radiation and the Earth’s Radiation Budget*”, by C. Varotsos/G. Chronopoulos, Published by Taylor and Francis CRC Press. Edited by A.P. Cracknell and E.S. Rowan, ISBN: 0750305630, January 1999.
6. **ENVIRONMENT AND ENERGY:** Contribution with the Chapter 9 in New Millennium Greece, by C. Varotsos, Published by IMCE, Paris France, 2001.

## 2.3 Books in Greek

1. **INTRODUCTION TO THE ATMOSPHERIC PHYSICS**, by C. Varotsos and G. Karras, Published by University of Athens, Athens 1997.
2. **PHYSICO-CHEMISTRY OF THE ATMOSPHERE.** Part I : Greenhouse Effect and Climate Change, by K. Ya Kondratyev and C. Varotsos, Published by Kostarakis Athens 1999.
4. **ATMOSPHERE AND AVIATION**, by C. Varotsos, Published by Symmetria, Athens, 2001.
5. **SPECIFIC CHAPTERS IN ATMOSPHERIC PHYSICS AND CHEMISTRY: Applications to the climate system**, by C. Varotsos, Published by Symmetria, Athens, 2011.

## 3. Research Publications

### 3.1 Research Papers in refereed Journals

#### 3.1.1. In Journals reported by SCI

##### 3.1.1. a) Regular Issues

- 1 Zerefos C., Varotsos C. and Repapis C.: **A note on the intercomparison between monthly mean radiance equivalent and rocketsonde temperatures**, Archives for Meteorology, Geophysics, and Bioclimatology, Series A, 32, 129-134, 1983.

- 2 Lazaridou M. and Varotsos C.: **Comments on the ionic conduction in KBr - KI mixed crystals**, Journal of Physics and Chemistry of Solids, 46, 5, 643, 1985.
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