

COST

Domain Committee " ESSEM "

COST Action

726

*Long term changes and climatology
of UV radiation over Europe*

MONITORING PROGRESS REPORT

*Period: March 2004
to March 2007*

This Report is presented to the relevant Domain Committee and contains two parts:

- I. **Management Report** prepared by the COST Office and Annual Grant Holder*
- II. **Scientific Report** prepared by the Chair of the Management Committee of the Action*

The report is a "cumulative" report, i.e. it is updated annually and covers the entire period of the Action.

Confidentiality: the documents will be made available to the public via the COST Action web page except for chapter *II.C. Self evaluation*.

Based on the monitoring results, the COST Office will decide on the following year's budget allocation.

I. Management Report prepared by the COST Office



I.A. COST Action Fact Sheet

COST Action 726 - Long term changes and climatology of UV radiation over Europe

• **Domain** *ESSEM*

• **Action details:**

CSO Approval: (03/10/2004)

End date: (28/03/2009)

Entry into force: (08/01/2004)

Extension: (day/month/year)

• **Objectives** The main objective of the Action is to advance the understanding of UV radiation distribution under various meteorological conditions in Europe in order to determine UV radiation climatology and assess UV changes over Europe.

• **Signatories:** *list of countries and date of signature*

Austria (02/02/2004)	Greece (04/06/2004)	Poland (08/01/2004)
Belgium (08/01/2004)	Hungary (12/01/2004)	Portugal (27/06/2004)
Bulgaria	Iceland	Romania (16/03/2004)
Croatia	Ireland	Republic of Serbia
Cyprus (08/01/2004)	Israel	Slovakia (11/06/2004)
Czech Rep. (20/04/2004)	Italy (22/06/2004)	Slovenia
Denmark (18/10/2004)	Latvia	Spain (25/02/2004)
Estonia (08/01/2004)	Lithuania	Sweden (08/01/2004)
Finland (08/01/2004)	Luxembourg	Switzerland (18/03/2004)
FYR of Macedonia	Malta	Turkey
France (07/05/2004)	Netherlands (14/01/2004)	United Kingdom (22/04/2005)
Germany (29/01/2004)	Norway (02/03/2004)	

• **Intentions to sign:**

• **Participating Institutes of non-COST countries:** World Radiation Data Center (WRDC), St. Petersburg (RU)

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• **Action Web site:** <http://www.cost726.org>

Working Groups *WG1 – Data collection (Leader, Dr. Hugo de Backer)*
WG2 – UV modeling (Leader: Dr. Peter Köpke)
WG3 – Requirements for biological UV effects (Leader: Dr. Alois Schmalwieser)
WG4 – Quality Control (Leader: Dr. Julian Gröbner)

I.B. Management Committee member list

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I.C. Overview activities and expenditures

**Budget period: March
2004-March 2007**

Total Action Budget:

Remaining Action Commitment:

Meetings

Meeting Type	Date	Place	Participants	Total
MCM1	29.03.04	Brussels, Belgium	22	13 255,00
MCM2	8-9.06.2004	Kos, Greece	19	21 161,00
MCM3 + WGs Meetings	21-22.10.2004	Warsaw, Poland	48	33 501,00
MCM4	18-19.03.2005	Spindleruv-Mlyn, Czech Republic	43	30 326,00
MCM5 + Core group meeting + Internal Workshop	5-7.09.2005	Garmisch-Pertenkirchen, Germany	31	29 894,07
WG4 Meeting	21-22.10.2005	Davos, Switzerland	15	6 076,11
MCM6 +WG2 Meeting	6-7.04.2006	Larnaca, Cyprus	34	26 002,62
WG3 Meeting	8-9.06.2006	Warsaw, Poland	9	3 835,56
MCM7 + WG2 Meeting	11-13.09.2006	Stockholm, Sweden	39	30 637,89
Wg1&2 core group meeting	29-30.01 2007	Brussels, Belgium	12	4 006,69

STSM

Beneficiary	Date	Place	Total
Julita Biszczuk	11-17.09.2004	European Reference Centre for Ultraviolet Radiation Measurements, JRC, Ispra	1 500,00
Jose Manuel Vilaplana	13-17.12.2005	European Reference Centre for Ultraviolet Radiation Measurements, JRC, Ispra	1 205,00
Chrysanthi Topaloglou	16.05-03.06.2005	Norwegian Radiation Protection Authority, Oslo, Norway	1 200,00
Grzegorz Zablocki	16.05-03.06.2005	Norwegian Radiation Protection Authority, Oslo, Norway	1 100,00
Anna Pribullova	22.05-2.06.2006	Meteorological Institute University of Munich, Germany	1 952,00
Janusz Krzyscin	31.05-09.06.2006	Meteorological Institute University of Munich, Germany	1 900,00
Mario Blumthaler	6-19.08.2006	PMOD / WRC, Davos, Switzerland	1 900,00
Jose Manuel Vilaplana	31.0 –11.08. 2006	PMOD / WRC, Davos, Switzerland	1 950,00

Workshops

Title	Date		Place	Total
	From	To		
Joined SPIE2006 and COST-726 Session 7: "UV Ground-based Measurements" and Session 8: "UV Modeling and Data Analysis"	13.09.2006	13.09.2006	Stockholm, Sweden	400,39

General Support Grants

Beneficiary	Date							Cost	Total
									0

Schools

Title	Date	Place						Cost	Total
									0

Others

Subsidy to MCM2	1 500,00
Subsidy to MCM4	2 000,00
Subsidy to web page management	1 500,00
Annual Grant Holder - secretariat	16 700,75

Action 726

Total :

230 799,10

II. Scientific Report prepared by the Chair of the Management Committee of the Action

II.A. Results achieved during the period March 2004 to March 2007

The up-to-date status of the Action is consistent with the time-table and objectives. The following stages have been completed:

- The available data for UV reconstruction have been recognised;
- Action's data base have been implemented and it is operated by Finish Meteorological Institute;
- The BSCW package (provided by DWD) is used for data and results access and exchange;
- The data Protocol has been agreed and has to be signed by all data-base and BSCW users;
- The data from selected six stations were made available to UV reconstruction models;
- The works concerning the UV reconstruction methodology have been started;
- The works on the construction of the Action's web page have been started. The web page would be operated by the Institute of Medical Physics, University of Veterinary Medicine in Vienna;
- The Data Protocol has been approved and sent out to all Action members;
- Update of the list of potential available data sets.
- The BSCW tool is now operational.
- Quality check of different algorithms and of input data for the UV reconstruction was completed.
- Models suited for building a European climatological dataset of UV radiation were identified.
- The Action's web page project was accepted by MC and the web page is now available at the site: <http://i115srv.vu-wien.ac.at/uv/COST726/ Cost726.htm>
- The COST726 contribution to WMO Standard Operating Procedures was discussed and accepted by WG4 members.
- The modeling exercise has been performed, using well defined input data prepared by WG1. Thirteen WG2 members with sixteen models and algorithms took part in the exercises and the results were presented at MCM6. The modeling exercise was very successful. Models that are suitable to perform the COST action have been identified. Moreover, a large body of data is available which can be used for many scientific questions, like practical aspects of cloud, aerosol or albedo effects on UV and model improvement. As an outcome, the paper describing the modeling exercises was prepared and submitted for SPIE 2006 Conference;
- The draft of the report from the modeling exercise was prepared.

- The calibration/comparison campaign of the broadband UV radiometers was held at PMOD/WRC Davos from 1 to 26 August 2006. It consisted of 2 weeks of laboratory characterizations of all participating radiometers and two weeks of outdoor measurements for the absolute calibration based on the QASUME spectroradiometer.
- Following the decision of MC made during MCM6, the Standard Operating Procedures for broadband instrument were prepared separately by COST-726 in the cooperation with the contributors to UV SAG of WMO. The draft has been sent out to the national delegates for consideration and acceptance.
- The COST-726 reconstructed ozone dataset was created.
- The suitability of different ozone data bases (ERA-40, NIWA, COST-726) for UV reconstruction was analyzed. On the base of the obtained results, the decisions concerning the usage of those ozone datasets in UV reconstruction were made.
- The possible sources of information about clouds (ERA-40, NCEP) that can be used in the UV reconstruction models were considered. It was decided that global radiation data would be used.
- The arrangements for the exercise aiming at comparing different methods for UV maps creation were made.
- The report on the results of the extensive UV reconstruction models intercomparison was prepared for publishing by OPOCE.
- The general ideas for Electronical Climatological Atlas (e-atlas) were defined and the decisions about its content were made.
- The content of the COST Action 726 Booklet that would provide the information about the UV climatology was decided.
- The results from PMOD/WRC calibration/comparison campaign were analysed. Calculated UV Index values with original calibration were collected from nearly all operators. PMOD/WRC delivered 34 calibration certificates and 2 performance records. Both, radiometer comparison and the laboratory characterisation comparison were also made.
- Campaign data and documentation were made available to the Action members.
- Draft campaign report has been circulated within WG4 members.
- Following the MC decision, the first stages of organizing the PMOD/WRC 'UV Conference', supported by COST Action-726, were completed. The conference program was decided and the key speakers were invited. The conference will be held on 17-20 September 2007 in Davos, Switzerland along with the MCM9 meeting.
- In September 2006, the address of the Action's web site <http://i115srv.vu-wien.ac.at/uv/COST726/Cost726.htm> was changed to the following one: <http://www.cost726.org>

II.B. Dissemination of results

- *Action related Publications and Reports*

P. Koepke, et. al, "UV exposure in Europe during the past", in Proceedings of the 17th International Congress of Biometeorology, ICB 2005 Annale der Meteorologie, 41, 2, 659-662;

Eerme K., "Variation of total solar radiation and estimated erythemal UV doses in Estonia during 1953-2004", in Proceedings of the 17th International Congress of Biometeorology, ICB 2005 Annale der Meteorologie, 41, 2, 663-666;

P.Koepke, et. al, "Modeling solar UV radiation in the past: comparison of algorithms and input data", in Proceedings of SPIE, Remote Sensing of Clouds and the Atmosphere XI, Vol. 6362, 636215-1 – 636215-1, 2006.

A.Webb, J.Gröbner, M.Blumthaler, 'Practical Guide to Operating Broadband Instruments Measuring Erythemally Weighted Irradiance', EUR 22595, ISBN 92-898-0032-1, COST Office, 2006, Belgium.

- *Conferences and Workshops*

- 17th International Congress of Biometeorology 2005, 5-9 September 2005, Garmisch-Partenkirchen, Germany; joint UV session.

- COST-726 Internal Workshop, joined with ICB Symposium, 6-7 September 2005, Garmisch-Partenkirchen;

- SPIE 2006 Conference, Stockholm, Sweden, 11-14 September 2006, joint session 'Remote Sensing of Clouds and the Atmosphere XI'.

- *Web site*

The Action's web site has been accepted by MC and is run by University of Veterinary Medicine, Vienna, Austria. The web page is available at the following site: <http://i115srv.vu-wien.ac.at/uv/COST726/Cost726.htm>

The web page is divided into three parts: Challenge, Meeting the challenge, Outcomes "The Challenge" contains the information concerning the UV radiation, its climatology and the goals of COST-726 Action. In the chapter "Meeting the Challenge" information about the Action, its structure, members and activities is presented. "Outcome" chapter contains the Minutes from the meetings, the Progress Reports as well as the Public Information that includes any form of dissemination of COST-726 results on different forum.

The web page includes the password-protected zone that contains all the documents and information that should be available only for Action's members. The decision concerning the content of this zone is made by the MC or by the individual authors. The last applies to the presentations.

In September 2006, the address of the Action's web site <http://i115srv.vu-wien.ac.at/uv/COST726/Cost726.htm> was changed to the following one: <http://www.cost726.org>

- *Scientific and Technical Cooperation (the list does not include the organizations, projects etc directly involved in the Action, neither does it include cooperation and contacts at national, regional or local level)*

The Head of the WMO, World Radiation Data Centre (WRDC) in Petersburg, Russia, dr Anatoly Tsvetkov had a presentation on: The WMO World Radiation Data Centre - 30 years of its activity. He was asked to join the Action.

The experts from the outside of UV community, dealing with influence of UV on environment, were invited to cooperate. Their remarks and suggestions are taken into account while preparing the COST-726 outcome.

The cooperation with the European Society for Photobiology (ESP) was originated in order to popularize the COST Action 726 outcomes among the photo-biologists as well as to better identification of their needs and requirements. A special ESP - COST Action 726 symposium titled 'A reconstruction of the UV climatology over Europe for photobiological studies' will be organized in the frame of the 12th Congress of ESP that will be held on 1- 6 September 2007 in Bath, UK.

- *Transfer of results*

SCOUT-O3 Project - Members of the Action's MC are involved in the project activities and the information as well as the results are being exchanged.

COST Action 719 "The use of Geographic Information Systems in climatology and meteorology"

At the MCM3 meeting in Warsaw, the Vice-chairwoman of COST Action 719, Mrs. Izabela Dyras presented the applications of GIS method to meteorology and climatology.

Bozena Lapeta was hosted by COST Action 719 at their meeting in Budapest and she participated in the Conference on the Spatial Interpolation Techniques in the Climatology and Meteorology, 25-28 October 2004, Budapest, Hungary.

The cooperation and contacts were established with the UV SAG WMO group in order to prepare the 'Standard Operating Procedure' guide.

- *Contacts in the ERA*

II.C. Self evaluation