

# Program

## Cloud Retrieval Evaluation Workshop-4 (CREW-4)



Image: Courtesy and Copyright by Alexander Riehn, Hotel am Badersee, Grainau

4-7 March 2014, Grainau, Germany, Europe

*Organized by Deutscher Wetterdienst. Financially supported by EUMETSAT, the European Space Agency through the ESA Cloud CCI project, the CM SAF project, and Deutscher Wetterdienst*

### Program Committee

*Bryan Baum (co-chair), Rob Roebeling (co-chair), Ralf Bennartz, Ulrich Hamann, Andrew Heidinger, Jan Fokke Meirink, Martin Stengel, Andi Walther, Phil Watts, and Anke Thoss*



# **CREW-4**

# **ORAL PROGRAMME**

# Tuesday 4 March 2014

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## REGISTRATION AND WELCOME

**07:30 Registration**

**08:30 Opening**

- Welcome & Workshop aims (Bryan Baum)
- Organisational matters (Martin Stengel)

## SESSION 1: CLOUD PARAMETER RETRIEVAL METHODS

### *Sub-Topic 1.1 Existing retrieval methods*

*Chairperson: Caroline Poulsen*

**08:45 Keynote:** Overview of combined retrievals from active instruments

*Robin Hogan*

**09:15** The MODIS cloud optical and microphysical property product: Overview of the Collection 6 algorithm and preliminary results

*Steve Platnick et al. (presenter Kerry Meyer)*

**09:30** The Community Cloud Optimal Estimation Retrieval for Climate (CC4CL): Retrieval System and Application to AVHRR and MODIS sensors

*M. Jerg et al., and the ESA Cloud CCI team*

**09:45** Enhancing the PPS cloud mask confidence in the polar night with the VIIRS Day-Night band

*Adam Dybbroe and Ronald Scheirer*

**10:00** Cloud and Radiation Parameter Retrievals from Satellites Using Updated NASA Langley Algorithms

*Patrick Minnis*

**10:15 COFFEE BREAK**

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### *Sub-Topic 1.2 New methods*

*Chairperson: Patrick Minnis*

**10:45** Application of a Spectrally Consistent Multichannel Adiabatic Retrieval to the MODIS Cloud Product

*John Rausch et al.*

**11:00** Cloud optical properties of multilayer clouds from solar and thermal SEVIRI channels

*Luce Bugliaro*

**11:15** Retrieving cloud microphysical properties in a fully 3D environment using active and passive sensors

*Mark Fielding*

**11:30** MODIS Cloud Thermodynamic Phase Discrimination for Collection 6 and Comparisons with CALIOP and POLDER.

*Benjamin Marchant*

**11:45** A Methodology for Simultaneous Retrieval of Ice and Liquid Water Cloud Properties  
*O. Sourdeval et al.*

**12:00 LUNCH BREAK**

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***Sub-Topic 1.3 New sensors***

*Chairperson: Jerome Riedi*

**13:00 Keynote:** Overview on cloud retrievals from passive sensors  
*Ralf Bennartz*

**13:15** Combining vertical resolved ground observations and geostationary satellite observations by use of a forward model approach  
*Anja Hünerbein et al.*

**13:30** Evaluation of cloud products for Himawari-8/-9  
*Kazuki Shimoji et al.*

**13:45** A Simultaneous Cloud-Atmosphere-Surface Retrieval Algorithm Using Hyperspectral Data  
*Xu Liu et al. (presenter Nadia Smith)*

**14:00** South Korea's geostationary satellite cloud retrievals: current status and plans for GK-2A in 2017  
*Yong-Sang Choi et al.*

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**14:15 COFFEE BREAK**

**14:45 BREAKOUT SESSIONS TOPIC 1**

**Breakout Session Topics:**

- A) Calibration requirements and way forward
- B) Cloud modelling issues for retrievals
- C) Strength and weaknesses of the retrieval approaches
- D) Synergistic retrievals

**16:15 Summary & Recommendations**

**18:00 ICE BREAKER (sponsored by CM SAF)**

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# Wednesday 5 March 2014

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## SESSION 2: CLOUD PARAMETER RETRIEVAL EVALUATION

### *Sub-Topic 2.1 Retrieval evaluations*

*Chairperson: Robin Hogan*

**08:30 Keynote:** Inter-comparison of cloud observations from CALIOP and passive sensors

*Dave Winker*

**09:00** Extension of the CREW-type Analysis to VIIRS

*Andrew Heidinger*

**09:15** CREW: Update on the evaluation of SEVIRI cloud parameter retrievals

*Ulrich Hamann et al.*

**09:30** The inter-comparison of cloud properties retrieved from AVHRR and MODIS using three state-of-the-art retrieval schemes

*Martin Stengel et al.*

**09:45** Validation of SEVIRI cloud top height retrievals from A-Train data

*Chu-Yong Chung et al.*

**10:00 COFFEE BREAK**

*Chairperson: Takashi Nakajima*

**10:30 Keynote:** Geometric cloud height assignment by Geosynchronous meteorological satellite - simulation and bias analysis

*Feng Lu*

**11:00** Retrieval and validation of cloud properties from the AATSR instrument

*Caroline Poulsen et al.*

**11:15** A Review of Cloud Property Retrievals over Snow and Sea-ice Surfaces

*Andi Walther and Andrew Heidinger*

**11:30** Towards characterizing the uncertainty of in-situ cloud observations: A case study for the ESA CCI Cloud project validating satellite-based cloud amount in mountain and Polar Regions

*Jędrzej S. Bojanowski and Reto Stöckli*

**11:45** Comparing OCA and DARDAR upper layer COT in multi-layer situations

*Phil Watts*

**12:00** UW-Atmospheric PEATE cloud evaluation capabilities: resolving cirrus optical thickness retrieval differences between solar reflectance, IR, and CALIOP observations

*Robert Holz et al.*

**12:15 LUNCH BREAK**

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**13:15 BREAKOUT SESSIONS TOPIC 2**

**Breakout Sessions Topics:**

- A) Validation sources and best-practises
- B) Inter-comparison and validation cloud parameters
- C) Uncertainty estimate assessments
- D) Retrievals over snow and sea ice

**15:00 COFFEE BREAK**

**15:30 Summary & Recommendations**

**POSTER SESSION**

*Chairperson: Rob Roebeling*

**16:00 POSTER PRESENTATIONS (1 slides, appr. 1 min per poster)**

**16:15 POSTER SESSION**

**18:30 END OF DAY 2**

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# Thursday 6 March 2014

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## SESSION 3: NOWCASTING AND SEVERE WEATHER APPLICATIONS

### *Sub-Topic 3.1 Now casting applications*

*Chairperson: Anke Thoss*

- 08:30 Keynote:** Cloud retrievals for severe weather forecasts  
*Daniel Rosenfeld*
- 09:00** SAFNWC/MSG cloud products  
*M. Derrien et al.*
- 09:15** Cloud properties retrieved from passive imagers and application to the shortwave flux estimation, regarding renewable energy  
*Takashi Nakajima et al.*
- 09:30** New Methods to Infer Aircraft Icing Conditions from Satellite Cloud Retrievals  
*William L. Smith Jr. et al.*
- 09:45** Impact of Smoke on Ice Cloud Properties in Geostationary Data  
*Bryan Baum and Andrew Heidinger*
- 10:00 COFFEE BREAK**
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## SESSION 4: CLOUD PARAMETER DATASETS FOR WEATHER AND CLIMATE RESEARCH

### *Sub-Topic 4.1 Medium and long-term cloud climatologies*

*Chairperson: Martin Stengel*

- 10:30 Keynote:** What did we learn from the GEWEX Cloud Assessment  
*Claudia Stubenrauch, S. Kinne and GEWEX Cloud Assessment Team*
- 11:00** Evaluation of cloud optical and microphysical property observations in the CLAAS dataset  
*Jan Fokke Meirink et al.*
- 11:15** Ten Year Time Series of High Cloud Frequencies from HIRS and MODIS  
*Richard Frey and W. Paul Menzel*
- 11:30** ESA Climate Change Initiative: Evaluation of the FAME-C cloud properties for the years 2007-2009  
*Cintia Carbajal Henken et al.*
- 11:45 A comparison of NOAA/AVHRR derived cloud amount with MODIS and surface observation data**  
*Liu Jian Yang Xiaofeng Cuipeng*
- 12:00 LUNCH BREAK**
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## ***Sub-Topic 4.2 Aggregation methods and cloud data analysis***

*Chairperson: Ralf Bennartz*

- 13:30** **Keynote:** Aggregation methods and their uncertainties  
*Nadia Smith et al.*
- 14:00** Extending error characterization of cloud masking: Exploring the validity and usefulness of the Naïve Bayesian probabilistic cloud masking method  
*Karl-Göran Karlsson*
- 14:15** The cloud cover vertical distribution and its diurnal cycle observed from Multi-Geostationary data  
*Genevieve Seze*
- 14:30** An assessment of cloud liquid water path and droplet number concentration retrievals derived from MODIS-like observations: Comparison with large-eddy simulation and implications for aerosol indirect effect study  
*Daniel Miller and Zhibo Zhang*
- 14:45** MODIS Collection 6 Clear Sky Restoral: Filtering cloud mask “not clear” pixels  
*Kerry Meyer et al.*
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**15:00** **COFFEE BREAK**

**15:30** **BREAKOUT SESSIONS TOPIC 3 & 4**

### **Breakout Session Topics:**

- A) Severe Weather Applications
- B) Aggregation Methods
- C) Inter-comparison of cloud property datasets, how to move on after the GEWEX CA, including new datasets and views
- D) How to improve outreach to the climate and weather community

**17:00** **Summary & Recommendations**

**18:00** **END OF DAY 3**

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# Friday 7 March 2014

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## SESSION 4: CLOUD PARAMETER DATASETS FOR WEATHER AND CLIMATE RESEARCH (Continued)

### *Sub-Topic 4.3 Climate Model Analysis*

*Chairperson: Bryan Baum*

- 09:00 Keynote:** How to prepare satellite-based cloud information for use by modelers  
*Robert Pincus*
- 09:30 Towards Traceable and Uniform Climate Data Records  
*Rob Roebeling*
- 10:00 COFFEE BREAK**
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## FINAL DISCUSSION

*Chairpersons: Bryan Baum and Rob Roebeling*

- 10:30 Presentations of WG Cloud parameter retrieval methods**
- 10:45 Presentations of WG Cloud parameter retrieval evaluations**
- 11:00 Presentations of WG Severe weather applications**
- 11:15 Presentations of WG Improving cloud parameter datasets**
- 11: 30 Final Plenary Discussion**
- 12:00 Summary of Decisions, Actions, and Recommendations**  
*(Appointment of sub-working group chairs, etc)*
- 13:00 DEPARTURE**
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# **CREW-4**

# **POSTER PROGRAM**

**The determination of cloud top height using hyperspectral measurements in the oxygen A-band**

*A. A. Kokhanovsky, V. V. Rozanov, L. Lelli, M. Vountas, J. P. Burrows*

**Multi-layered Cloud Parameter Retrievals: Developments and Improvements Using Passive Satellite Observations**

*Fu-Lung Chang, Patrick Minnis, Rabindra Palikonda, Sunny Sun-Mack, Yan Chen, Mandana Khaiyer, Douglas Spangenberg, and Christopher Yost*

**Climate Change in Ethiopia**

*Habtamu Adugna*

**SEVIRI Cloud Product Collection 6 Updates**

*Galina Wind, Jerome Riedi, Steven Platnick, Andrew Heidinger*

**The location of inversion boundary layer clouds**

*Sauli Joro, Phil Watts, Hans-Joachim Lutz*

**The CM SAF climate data records of cloud properties**

*M. Stengel, K.-G. Karlsson, J.F. Meirink*

**Evaluation results of the optimal estimation based, multi-sensor cloud property data sets derived from AVHRR heritage measurements in the Cloud\_cci project.**

*S. Stapelberg, M. Jerg, M. Stengel, R. Hollmann and the ESA Cloud CCI team*

**Recent improvements to the KNMI Cloud Physical Properties algorithm**

*Gerd-Jan van Zadelhoff, Jan Fokke Meirink*

**Update of the SEVIRI scene identification within the GERB processing for Ed. 2**

*Ipe A, E. Baudrez, N. Clerbaux, I. Decoster, S. Nevens, A. Velzaquez Blazquez*

**Improvements in the Optimal Retrieval of Aerosol and Clouds (ORAC) system: Cloud-top correction for infrared measurements**

*Greg McGarragh, Don Grainger, Caroline Poulsen, Gareth Thomas, Adam Povey*

**Retrieval of Cloud Optical Properties and Their Application to Examinations of Cloud Life-Cycles**

*Jennifer Slobodda, Rene Preusker, Jürgen Fischer*

**Inter-comparison of cloud parameters between COMS and MODIS**

*Haklim Choi, Eunha Son, Eun-Jeong Cha*

**DECADAL CLOUD TRENDS AS MEASURED BY THREE GENERATIONS OF HYPER SPECTRAL INFRARED SOUNDERS, AIRS, IASI and CrIS**

*Nadia Smith, Elisabeth Weisz, Paul Menzel, Bryan Baum*

**Evaluation of Level-3 aggregation methods**

*Theo Steenbergen and Rob Roebeling*

**Information content analysis on cloud microphysics parameters from measurements of the future Multi-viewing, Multichannel, Multi-polarisation Instrument (3MI)**

*Guillaume Merlin, Jérôme Riedi, Laurent Labonnote, Céline Cornet*

*Version 27 January 2014*

**Detection of multi-layer cloud cases from SEVIRI**

*Hans Joachim Lutz*

**Introduction of the Optimal Cloud Analysis for Himawari-8/9**

*Masahiro Hayashi*

**Diurnal cycles of linear contrail coverage, cirrus coverage, and outgoing longwave radiation in the North Atlantic flight corridor derived from MSG and compared with MODIS**

*Kaspar Graf, Ulrich Schumann, David Duda, Pat Minnis*

**NWCSAF PPS package v 2014: updates and preliminary validation results**

*Anke Thoss, Nina Håkansson, Adam Dybbroe, Ronald Scheirer, Sara Hörnquist, Karl-Göran Karlsson, Jan-Fokke Meirink*

**How much independent cloud information's could be measured with OLCI's Oxygen A band channels?**

*André Hollstein and Jürgen Fischer*