

Final Report
on
ESF Support for the
Focus session and dedicated side meeting on
Severe Thunderstorm Reporting in Europe and the whole
Mediterranean Region
5th European Conference on Severe Storms, ECSS 2009
Landshut, Germany, 12-16 October 2009

Principal Investigator: Dr. Nikolai Dotzek

European Severe Storms Laboratory e. V. (ESSL)
Münchner Str. 20, 82234 Wessling, Germany

Phone (+49) 8153-28-1845; Fax (+49) 8153-28-1841; eMail: nikolai.dotzek@essl.org

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www.essl.org/ECSS/2009/

SUMMARY

The 5th European Conference on Severe Storms, ECSS 2009 in Landshut, Germany from 12-16 October 2009 included a “Severe weather reporting and databases” focus session and a dedicated side meeting on applications and benefits of more homogeneous thunderstorm reporting in Europe and the whole Mediterranean region.

The purpose of this ECSS focus session, and the side meeting was to enhance collaboration on pan-European storm reporting in order to obtain a more homogeneous, consistent and stable availability of storm data for climatological and verification applications. This is also the topic of a current proposal for a new COST Action coordinated by ESSL. The side meeting was expected to raise interest in this new COST Action and to gain new participants, as in September 2009, the COST full proposal was just barely not accepted for funding (38 of 40 necessary points).

In total, 44 ECSS participants attended the side meeting on the evening of 13 October 2009, and most of these had oral or poster presentations either in the focus session on “Severe weather reporting and databases” on 13 October or in related sessions of the ECSS conference on other days of the conference week.

The discussions at the side meeting highlighted open issues of the current COST proposal on Severe Thunderstorm Reporting and provided suggestions for addressing some of the 2009 reviewer comments in the 2010 round for proposing new COST Actions. There was unanimous agreement that it will be worthwhile pursuing this approach again in 2010, with the deadline for a revised COST outline proposal on 26 March 2010.

SCIENTIFIC CONTENT OF THE EVENT

The 5th European Conference on Severe Storms, ECSS 2009 in Landshut, Germany from 12-16 October 2009 included a “Severe weather reporting and databases” session and a dedicated side meeting focusing on applications and benefits of more homogeneous thunderstorm reporting in Europe and the whole Mediterranean region. The side meeting was also in support of a new COST Action in this field proposed by ESSL.

The scope of the ECSS conferences covers all aspects of severe convective weather. In particular, the ECSS 2009 had the following session topics (the dedicated focus session is highlighted):

- Theory of convection, atmospheric instability, and synoptic or orographic forcing
- Dynamics, microphysics and electrification of severe storms
- Severe weather climatology and hazard assessment
- Climate change impacts on severe storms, development of adaptation concepts
- Forecasting, nowcasting and warning of severe storms
- Numerical studies, e.g. of convective initiation, storm life cycles and phenomena
- Remote sensing of severe storms, e.g. by satellite, radar, and lightning detection
- (Extra-)tropical cyclones: embedded thunderstorms and large-scale wind fields
- Severe storm case studies and field campaigns, e.g. COPS, THORPEX, VORTEX2
- **Severe weather reporting and databases**, e.g. applied to forecast evaluation
- Socio-economic aspects, e.g. damage analysis, wind speed vs. damage relation
- Socio-economic aspects, e.g. emergency response and risk management, security of critical infrastructures
- Evening session: videos and pictures of severe convective weather

The 5th European Conference on Severe Storms organised by the ESSL attracted 207 researchers from 41 countries, among them almost all top scientists in that growing community. Current issues of severe local storm phenomena were discussed in almost 100 talks and about 130 poster presentations. Except for Australia and Antarctica, all continents were represented by ECSS participants. More than 10 participants each came from Germany, USA, Spain, Czech Republic and Italy. Although it is a European conference, the large group of US scientist and the growing number of contributions from Japan, India and South America demonstrates that severe storms are in fact a global issue. One example is the new finding that the lightning activity maximum precedes hurricane intensity maximum, which could be helpful for hurricane intensity predictions.

Not surprisingly, climate change and its relationship to the occurrence and intensity of local storms was one of the major topics of the conference and possibly the most interesting part for the public. However, so far no unambiguous trend of more frequent or intense storms can be proven from the available data, but on the other hand it cannot be ruled out either. We now start to get more detailed information from regional climate models about the future probability of weather situations that may support the development of severe storms. Thus, more detailed information about the environment and genesis of severe events is needed. One example is the field campaign VORTEX2 in the USA in 2009/10 investigating the origin of rotation in tornadoes and their near-ground winds by a manifold of measurement devices including probes and even an armoured vehicle being placed in the path of the tornado. VORTEX2 formed a major subtopic of the ECSS. Other presentations focused on significant tornado events in Europe like Birmingham (UK) on 28 July 2006 or the F4 tornado of Hautmont (FR) on 3 August 2008.

Even though tornadoes may be considered as the most spectacular severe weather phenomenon, the socio-economic impact of flash floods, large hail, damaging straight-line winds and lightning is much higher. One key role plays the modelling and forecasting of rotating thunderstorms – so-

called supercells – which are most prominently capable of producing the aforementioned hazards. Advances in numerical predictions like the operational COSMO-DE model of the German Weather Service DWD allow for an explicit forecast of supercell probabilities. Connected with improved nowcasting and warning is the problem of public awareness. Recent studies show that in Europe, severe weather warnings are likely not yet correctly understood by the public and the perception of hazards often differs significantly from reality.

Databases become more and more important for climatology, hazard assessments and forecast verification since homogeneous information about the occurrence of severe storms was rather limited in the past. As an outstanding example, the ESSL-operated European Severe Weather Database (ESWD) was awarded the “365 Landmarks” prize in this year’s “Land of Ideas” contest of the German government. The Heino Tooming Award 2009 was presented to Jean-Baptiste Cohuet, Romu Romero, Victor Homar, Veronique Ducroq and Climent Ramis for their presentation “Maritime convective initiation of the severe thunderstorm of 4 October 2007 in Mallorca: Numerical experiments”. The Tooming Award established in 2007 by ESSL and endowed with a prize of 300 € recognizes any outstanding scientific presentation at an ECSS conference by a group led by a European scientist and involving collaborators from at least one other European country, fostering in this way collaboration across this continent in the field of severe weather research.

As a major conclusion, in 2009 the still growing severe storms community in Europe and beyond has exceeded the “200 ECSS participants” threshold, and again attained an even higher scientific level. Since the first ECSS in Toulouse in 2000, this is a remarkable development which emphasizes the importance of severe weather research. The proceedings of the 5th ECSS will appear in the refereed literature as a Special Issue of the Journal Atmospheric Research. The next ECSS is scheduled for 2011 and will include the new session topic “Preconvective environment and convective initiation”.

The ECSS 2009 preprints (extended abstracts) are available online, either each one separately sorted by authors, see www.essl.org/ECSS/2009/proceedings.htm or the whole volume which appeared as ESSL Scientific Report 2009-01: www.essl.org/reports/sci/ESSL-science-rep-2009-01.pdf.

DISCUSSIONS AT THE EVENT

According to the Munich Reinsurance Group, a total damage of 5 to 8 billion € each year is caused all over Europe by thunderstorm-related severe weather events (hail, straight-line winds, tornadoes, flash floods, and lightning). Globally, this damage was estimated to be about 400 billion € (2000 monetary value) in the decade 1991-2000. That is, severe convective storms in Europe contribute 10 to 20% to the global damage by these extreme weather events. Even if climate change had no effect on these figures, the amount of damage (property loss and loss of lives) each year would be far too high to be neglected.

To strengthen European research on extreme weather events would thus be a foresighted decision for the next years (and decades) especially in light of the potential climate change impacts. For storm reporting, the following relevant topics can be identified and were highlighted again at the side meeting:

The knowledge of the present state of severe weather occurrence in Europe is essential for any successful research on climatology and hazards, as well as for verification of remote sensing techniques. Therefore, ESSL’s development of the pan-European Severe Weather Database ESWD of standardized severe weather reports has been a major milestone (Dotzek et al., 2009). However, the IPCC 4th assessment report clearly substantiates that the global severe convective storm report

databases are not yet large enough over a sufficient time period to perform a similarly reliable analysis as for the USA, concerning climate-induced changes and trends of severe thunderstorms.

So, the purpose of the ECSS focus session, and the side meeting of 44 participants, was to enhance collaboration on pan-European storm reporting in order to obtain a more homogeneous, consistent and stable availability of storm data for climatological and verification applications. This is also the topic of a current initiative for a new COST Action coordinated by ESSL.

The COST outline proposal was submitted in late March 2009 and received very high scores from a larger group of COST-ESSEM domain representatives. No significant criticisms were uttered in this round of the proposal. The full proposal, submitted in summer 2009, received its scores by external referees in early September. In case of a successful evaluation, the ECSS side meeting would have been a preparatory meeting prior to the launch of the new COST Action. Unfortunately, in this round the proposal barely missed the threshold score for selection for funding and received 38 of the necessary 40 points. Thus, the ECSS side meeting then mainly aimed at collecting feedback to the referees' comments, to provide suggestions to revise a future version of the proposal, and to decide if the consortium would still support resubmission of the proposal in 2010.

RESULTS AND IMPACTS OF THE EVENT

After recapitulation of the reviewers' criticism, there was general agreement that some of the statements by the referees were somewhat uninformed, and could have easily been addressed if there had been a chance for a reply by the proposers. In addition, several suggestions were made to address the criticisms. It would be good to also apply standard reports from the meteorological station networks, test them for their value concerning severe thunderstorm reports and compare them to the available in situ reports from the European Severe Weather Database ESWD. This would clearly show the large gaps in the routine station network despite its operational availability. Also the combination of the ESWD reports with satellite and radar products should be pursued in more detail. There was unanimous agreement that the referees' comments can be properly addressed in a new round of the proposal and that it should be submitted again in 2010.

The new outline COST proposal is due 26 March 2010 and, if successful, the full proposal will again be submitted in summer. Hence, the ECSS session and side meeting brought together the relevant community before a new round of the COST Action proposal. Raising the interest in the need for a concerted action in this field at the ECSS side meeting also helped to strengthen the links between the involved countries and thus to make a significant step forward towards homogeneous severe thunderstorm reporting in Europe and the whole Mediterranean region.

APPENDIX

MEETING PROGRAMME

8-10 October 2009 EUMETSAT Convection Workshop (50 participants, by invitation)
12-16 October 2009 5th ECSS (207 participants from 41 countries)

The local organiser of both the Convection Workshop and the 5th ECSS was the ESSL. The ECSS detailed session programme is available on www.essl.org/ECSS/2009/agenda.htm and also attached to this report.

Mon, 12 October: Opening and oral sessions, Icebreaker reception
Tue, 13 October: **Focus session on storm reporting (oral & poster, morning - afternoon),
Dedicated side meeting (evening, 18:15-20:15)**

Wed, 14 October: Oral and poster sessions, Conference dinner, Awards
 Thu, 15 October: Oral and poster sessions, ESSL General Assembly
 Fri, 16 October: Oral and poster sessions, Heino Tooming Award, Closing

The ECSS 2009 was co-sponsored mainly by the German Ministry for Education and Research, Munich RE, and the German Weather Service DWD. None of these or the other sponsors (see ECSS website) interfered with the rules laid out by ESF.

USE OF ESF MedCLIVAR SCIENCE MEETING SUPPORT

The financial planning of the side meeting assumed 20 ESF-funded participants of the side meeting and encompassed a €24.00 per diem for meals on two days, two nights at a hotel (rate €90.00 per night) and €225.00 travel support for each participant. The local administrative costs were to cover parts of the full costs of the ECSS conference secretariat as well as organisation and technical handling of the travel support payments.

Table 1 shows that actually 18 scientists claimed their need to be supported to attend the ECSS focus session and side meeting. All of them had either oral or poster presentations at the ECSS conference. Their countries of origin were mainly from the Mediterranean or Eastern and Southeastern Europe.

Depending on the individual requirements by the funded ECSS participants, the travel support was either used for travel or hotel costs or per diems. In total, an amount of €8723.11 was paid by ESSL to the listed ECSS participants. Original receipts were collected by ESSL's Treasurer and are kept in ESSL's files.

Local administrative costs of organizing the side meeting were higher than expected, as the number of participants greatly exceeded the original expectations. Instead of only about 20 participants, there were 44 attendees at the meeting, and the organizational matters for those participants receiving ESF funding turned out to be more elaborate as well. Therefore we budget ¼ person-month (PM) each for the ESSL Director and the Treasurer, and additionally € 100.00 for consumables (printing costs etc.). This leads to

Director, ¼ PM	€1800.00
Treasurer, ¼ PM	€1500.00
Consumables	€ 100.00
Total	€3400.00

Together with the travel support costs for the side meeting participants shown in the Table below, the full costs of this side meeting and focus session are €12,123.11. We therefore kindly request the payment of the Total Grant Amount of €10,000.00.

REFERENCES

Dotzek, N., P. Groenemeijer, B. Feuerstein, and A. M. Holzer, 2009: Overview of ESSL's severe convective storms research using the European Severe Weather Database ESWD. *Atmos. Res.* **93**, 575-586.

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Table 1. Scientists supported by ESF Travel Support under this grant. All monetary values are given in Euro (€).

ESF grant			5 th ECSS 2009, Landshut, Germany				
Date	Receipt	Name & First Name	Organisation, Country	Travel Costs	Accommodation	Meals / per diem	Total
13.10.09	OUT 13/04	Gürol, Aydin	Turkish National Weather Service, Turkey	178,00 €	322,00 €	0,00 €	500,00 €
13.10.09	OUT 13/09	Strajnar, Uros	Slovenian National Weather Service, Slovenia	101,94 €	218,00 €	60,00 €	379,94 €
13.10.09	OUT 13/10	Price, Colin	Hebrew University Tel Aviv, Israel	233,00 €	267,00 €	0,00 €	500,00 €
13.10.09	OUT 13/11	Burcea, Sorin	Romanian National Weather Service, Romania	0,00 €	392,00 €	108,00 €	500,00 €
13.10.09	OUT 13/12	Antonescu, Bogdan	Romanian National Weather Service, Romania	0,00 €	392,00 €	108,00 €	500,00 €
13.10.09	OUT 13/13	Bielec, Zuzanna	Uniwersytet Slaski Katowice, Poland	226,70 €	138,00 €	120,00 €	484,70 €
13.10.09	OUT 13/17	Leitao, Paula	Portugese National Weather Service, Portugal	322,00 €	178,00 €	0,00 €	500,00 €
13.10.09	OUT 13/18	Simeonov, Petio	Bulgarian National Weather Service, Bulgaria	279,88 €	340,00 €	175,00 €	794,88 €
14.10.09	OUT 14/01	Homar, Victor	Universidad des Iles Baleares, Spain	87,50 €	356,00 €	0,00 €	443,50 €
14.10.09	OUT 14/02	Bell, Aurora	Romanian National Weather Service, Romania	144,00 €	356,00 €	0,00 €	500,00 €
14.10.09	OUT 14/06	Placko, Dunja	DHMZ Zagreb, Croatia	0,00 €	436,00 €	64,00 €	500,00 €
14.10.09	OUT 14/07	Tymofeiev, Vladislav	Ukrainian Hydromet. Research Institute, Ukraine	235,09 €	129,00 €	120,00 €	484,09 €
15.10.09	OUT 15/01	Tuovinen, Jari Petteri	Finnish National Weather Service, Finland	0,00 €	495,00 €	5,00 €	500,00 €
15.10.09	OUT 15/02	Pajek, Monika	IMGW Krakow, Poland	0,00 €	500,00 €	0,00 €	500,00 €
26.10.09	BA 3/13	Benko, Martin	Slovak Hydrometeorological Institute, Slovakia	0,00 €	356,00 €	0,00 €	356,00 €
26.10.09	BA 3/13	Púčik, Tómas	Masaryk University, Czech Republic	0,00 €	290,00 €	0,00 €	290,00 €
26.10.09	BA 3/13	Punkka, Ari-Juhanni	Finnish National Weather Service, Finland	0,00 €	495,00 €	0,00 €	495,00 €
26.10.09	BA 3/13	Rauhala, Jenni	Finnish National Weather Service, Finland	0,00 €	495,00 €	0,00 €	495,00 €
		ESSL	Local administrative costs:				3400,00 €
			(¼ PM each Director & Treasurer, consumables)				
				1808,11 €	6155,00 €	760,00 €	12 123,11 €

Maximum ESF grant amount: 10 000,- €

ECSS 2009 AGENDA

ORAL PRESENTATIONS

Sunday, 11 October 2009	
18:00	Registration
20:00	End of Sunday registration time

Monday, 12 October 2009	
08:00	Registration / Poster setup
Opening ceremony	
Chair: N. Dotzek	
09:00	Prof. Dr. Peter Höppe, Munich RE: <i>Opening Address</i>
09:10	Mr. Achim Baumhoer, Deutsche Bank: <i>“365 Landmarks in the Land of Ideas” award for the ESWD</i>
09:25	Dr. Nikolai Dotzek, ESSL and DLR: <i>Introduction to Landshut</i>

Monday, 12 October 2009	
Session 8: (Extra-)tropical cyclones: embedded thunderstorms & large-scale wind fields	
Chair: P. Markowski	
09:30	L. Garcies, V. Homar: <i>Sensitivities of Mediterranean intense cyclones: analysis and verification</i>
10:00	A. Vetrov, N. Kalinin: <i>A study of generation of available potential energy in South cyclones and hazard events over the Ural</i>
10:15	C. Price, Y. Yair, M. Asfur: <i>Lightning activity in hurricanes</i>
10:30	Poster setup / Coffee & Press Conference
11:00	O. Martinez-Alvarado, S. Gray: <i>Sting jets in climatological datasets</i>
11:15	C. Gatzen, T. Púčik: <i>Cold-season mesoscale convective systems in Germany</i>
Session 4: Climate change impacts on severe storms, development of adaptation concept	
Chair: H. Brooks	
11:30	P. Höppe: <i>Significant Increases in Frequencies and Intensities of Weather Related Catastrophes – what is the Role of Climate Change?</i>
12:00	A. Champion, K. Hodges, L. Bengtsson: <i>Extreme Precipitation: Current Forecast Ability and Climate Change</i>
12:15	J. Trapp, E. D. Robinson, M. E. Baldwin, N. S. Diffenbaugh: <i>High-resolution modeling of the effects of anthropogenic climate change on severe convective storms</i>
12:30	K. Riemann-Campe, R. Blender, N. Dotzek, K. Fraedrich, F. Lunkeit: <i>Future global distributions of CAPE and CIN</i>
12:45	Z. Cao: <i>Severe hail frequency over Ontario, Canada: recent trend and variability</i>
13:00	Lunch

Session 9A: Severe storm case studies	
Chair: C. Price	
14:30	G. Pistotnik, A. M. Holzer, R. Kaltenböck, S. Tschannett: <i>An F3 downburst in Austria - a case study with special focus on the importance of real-time site surveys</i>
15:00	J. Bech, N. Pineda, M. Aran, J. Amaro, M. Gayà, J. Arús, J. Montanyà, O. van der Velde: <i>An observational analysis of a tornadic severe weather event</i>
15:15	M. Korosec, J. Cedilnik: <i>Case study: Extensive wind damage across Slovenia on July 13th, 2008</i>
15:30	J. Marsham, S. Trier, T. Weckwerth, J. Wilson, A. Blyth: <i>Observed transition from an elevated mesoscale convective system to a surface based squall line: 13th June, IHOP_2002</i>
15:45	A. Pucillo, A. Manzato: <i>08/08/08: classification and simulation challenge of the FVG olympic storm</i>
16:00	Posters / Coffee
Session 5A: Forecasting of severe storms	
Chair: J. Rauhala	
16:30	P. Groenemeijer, J. Dahl, C. Gatzen, T. Púčik, O. Schlenczek, H. Tuschy, O. van der Velde: <i>Probabilistic severe weather forecasting at the European Storm Forecasting Experiment (ESTOFEX)</i>
16:45	A. Manzato: <i>Sounding-derived indices for forecasting hailstorms using ensembles of artificial neural networks</i>
17:00	P. Knightley: <i>Severe local storm forecasting in the British Isles</i>
17:15	D. Rezacova, P. Zacharov: <i>Forecasting QPF uncertainty for heavy rainfalls produced by local convective storms</i>
17:30	P. Santurette, C. Georgiev, C. Piriou: <i>A diagnostic tool based on MSG 6.2/7.3µm channel for the analysis and forecasting of deep convection</i>
17:45	M. Vich, R. Romero, V. Homar, H. Brooks: <i>Comparison of several Ensemble Prediction Systems applied to Mediterranean high impact cyclones associated with heavy rainfall and strong winds</i>
18:00	End of presentations
	Icebreaker
18:30	Dr. Thomas Gambke, Councillor, City of Landshut: <i>Welcome address</i>
18:45	Reception
21:00	End of day 1

Tuesday, 13 October 2009	
08:30	Registration
Session 9B: Severe weather field campaigns	
Chair: G. Craig	
09:00	H. Bluestein, D. Burgess, D. Dowell, <u>P. Markowski</u> , E. Rasmussen, Y. Richardson, L. Wicker, J. Wurman: <i>VORTEX2: The Second Verification of the Origins of Rotation in Tornadoes Experiment</i>
09:30	A. Blyth, K. Browning, J. Marsham, P. Clark, L. Bennett: <i>Observations of the initiation and development of severe convective storms during CSIP</i>
10:00	P. Groenemeijer, U. Corsmeier, C. Kottmeier: <i>The development of tornadic storms near a surface warm front in central England during the Convective Storm Initiation Project (CSIP)</i>
10:15	Y. Richardson, C. L. Ziegler, M. Buban, J. Marquis, J. Wurman: <i>Impact of Dryline Misocyclones on Convection Initiation on 19 June 2002 during IHOP</i>
10:30	Posters / Coffee & Group photo
11:00	A. Dörnbrack, G. Craig, S. Jones, H. Wernli: <i>T-NAWDEX - Basic Research allied to the future of NWP</i>
Session 10: Severe weather reporting and databases, e.g. applied to forecast evaluation	
Chair: J. Trapp	
11:15	H. Brooks, P. Marsh, A. M. Kowaleski, P. Groenemeijer, T. E. Thompson, C. S. Schwartz, C. M. Shafer, A. Kolodziej, N. Dahl, D. Buckley: <i>Evaluation of ESTOFEX Forecasts</i>
11:45	B. Antonescu, A. Bell, S. Burcea, D. Carbutaru: <i>Reporting on tornadic storms in Romania</i>
12:00	P. Groenemeijer, <u>T. Kühne</u> , Z. Liang, N. Dotzek: <i>New capabilities of the European Severe Weather Database</i>
12:15	K. Hauer: <i>Reporting on severe storms in Early Modern Time in the Netherlands and in the Eastern Alpine Region</i>
12:30	J.-P. Tuovinen, D. M. Schultz: <i>Building a database of severe weather phenomena: Severe hail in Finland</i>
12:45	M. Aran, C. Franell, M. Busto., A. Andres, N. Pineda, M. Torà: <i>The use of a hailpad network in a Meteorological Service. A comparative study with observational data: 17th September 2007</i>
13:00	Lunch
POSTER block I: Sessions 4, 5, 6, 8, 9, 10	
Chair: N. Dotzek	
14:15	Posters on display <i>Authors of named sessions in attendance</i>
Session 10: Severe weather reporting and databases, e.g. applied to forecast evaluation	
Chair: J. Trapp	
15:15	A. Kollmohr, S. Vössing: <i>New severe weather reporting system of Skywarn Germany - intention and first experience</i>
15:30	P. Mahieu, E. Wesolek: <i>The deadly EF-4 Tornado of August 3, 2008, in northern France</i>

Session 5A: Forecasting of severe storms	
Chair: J. Dessens	
15:45	P. Marquet, P. Santurette: <i>Convective parameters computed with ALADIN and AROME models for the Hautmont (F4) tornado</i>
16:00	Posters / Coffee
Session 5B: Nowcasting of severe storms	
Chair: J. Dessens	
16:30	C. Forster, A. Tafferner, T. Zinner, H. Mannstein, S. Sényi, Y. Guillou: <i>Nowcasting of thunderstorms within a weather information and management system for flight safety</i>
16:45	R. Petersen, R. Aune: <i>Objective NearCasts of convective destabilization prior to isolated summer-time convective events using moisture products from Geostationary satellites</i>
17:00	P. Leitão: <i>Operational use of satellite and radar products at Portugal</i>
17:15	C. Price, M. Kohn, E. Galanti, K. Lagouvardos, V. Kotroni: <i>Nowcasting thunderstorm activity across the Mediterranean</i>
17:30	V. Meyer, H. Höller, H.-D. Betz, K. Schmidt: <i>Temporal Evolution of Total Lightning and Radar Parameters of Thunderstorms in Southern Germany and its Benefit for Nowcasting</i>
17:45	T. Schartner, P. Névir, G. C. Leckebusch, U. Ulbrich: <i>Analysis of Thunderstorms with the Dynamic State Index (DSI) in a Limited Area High Resolution Model</i>
18:00	End of presentations
18:15	Side meeting (<i>Bürgerzimmer</i>): Towards a new COST Action STORM
20:15	End of day 2

Wednesday, 14 October 2009	
08:30	Registration
Session 6: Numerical studies, e.g. of convective initiation, storm life cycles, phenomena	
Chair: K. Kosiba	
09:00	A. Seifert, M. Baldauf, C. Gebhardt, S. Theis: <i>Explicit forecasting of supercells with the operational COSMO-DE</i>
09:30	J.-B. Cohuet, R. Romero, V. Homar, V. Ducroq, C. Ramis: <i>Maritime convective initiation of the severe thunderstorm of 4 October 2007 in Mallorca: numerical experiments</i>
09:45	F. Feser, H. von Storch: <i>Multi-decadal dynamical downscaling of tropical cyclones in East Asia using spectrally nudged regional climate models</i>
10:00	D. Mastrangelo, K. Horvath, M. M. Miglietta, A. Moscatello, A. Riccio: <i>Observational and numerical analysis of a heavy precipitation event over southern Italy</i>
10:15	A. D. Schenkman, M. Xue: <i>An analysis of numerically simulated mesovortices and tornado-like vortices in a mesoscale convective system</i>
10:30	Posters / Coffee
11:00	T. E. Thompson, L. J. Wicker, D. E. Forsyth, M. I. Biggerstaff: <i>EnKF Analysis of the 29 May 2004 Oklahoma City Supercell using Rapid-Scan Phased Array Radar Data</i>
11:15	K. van Weverberg, N. P. M. van Lipzig, L. Delobbe, D. Lauwaet: <i>Sensitivity of quantitative precipitation forecast to soil moisture initialization, microphysics parameterization and horizontal resolution</i>
Session 5A/C: Forecasting and warning of severe storms	
Chair: J. Kain	
11:30	W. Szilagyi: <i>A waterspout forecasting technique</i>
12:00	A. Friedrich: <i>Tornadoes in Germany – Current developments at DWD</i>
12:15	D. Murer: <i>Nowcasting and Warning in convective weather situations at MeteoSwiss</i>
12:30	A. G. Keul, A. M. Holzer, P. Sterzinger, S. Rudolf, A. Reinmueller: <i>Are Austrian radio weather warnings user-friendly?</i>
Session 2: Dynamics, microphysics and electrification of severe storms	
Chair: R. Petersen	
12:45	D. R. MacGorman, K. M. Kuhlmann, P. R. Krehbiel, M. I. Biggerstaff, D. P. Betten: <i>Three-Dimensional Lightning Mapping Observations of Supercell Storms</i>
13:00	Lunch & Future ECSS planning meeting
14:30	O. van der Velde, J. Montanya, D. Romero, S. Soula, N. Pineda, J. Bech, V. Reglero: <i>Observations of Western Mediterranean TLE: LS8000 Intracloud Lightning and High-Speed Video</i>
15:00	U. Blahak, J. Plieninger, S. Lang, K. D. Beheng: <i>An orographic weakening effect for coldpool driven convective systems</i>
15:15	J. Dahl, U. Schumann, H. Höller, C. Keil: <i>A lightning parameterization for the COSMO-DE model</i>

15:30	G. J. Tripoli, M. B�ker: <i>The formation and maintenance of strong tornadic vortices through vorticity confinement</i>
15:45	C. L. Ziegler, L. Wicker, M. Biggerstaff, D. Betten, E. Mansell, K. Kuhlman, D. MacGorman: <i>Evolution of downdraft thermodynamics and low-level rotation in the tornadic 29 May 2004 Geary, OK, USA supercell storm</i>
16:00	Coffee
Session 1: Theory of convection, atmospheric instability, synoptic or orographic forcing	
Chair: K. D. Beheng	
16:30	A. L. Houston: <i>Criticality: A proposed theory for understanding and forecasting deep convective initiation</i>
17:00	A. Bell: <i>Conceptual models of severe storms initiation in South Eastern Romania</i>
17:15	B. Geerts, T. Andretta, Y. Wang: <i>A long-lived tornadic mesocyclone in a low-CAPE environment in an orographically-generated potential vorticity banner</i>
17:30	L. Molini, A. Parodi, N. Rebora, G. C. Craig, F. Siccardi: <i>The role of convective equilibrium in the characterization and the predictability of severe storms in Italy</i>
17:45	M. D. Parker: <i>Impact of lapse rates upon low-level rotation in idealized storms</i>
18:00	End of presentations
20:00	Conference Dinner (<i>Redoutensaal</i>)
22:30	End of day 3

Thursday, 15 October 2009	
08:30	Registration
Session 3: Severe weather climatology and hazard assessment	
Chair: M. Sioutas	
09:00	C. A. Doswell III: <i>Methods for reanalysis of historic tornadoes</i>
09:30	S. Cheval, S. Burcea, A. Dumitrescu, B. Antonescu, T. Breza: <i>Regional variation of extreme rainfall events in Romania</i>
09:45	J. Dessens, C. Berthet, J. L. Sánchez: <i>Yearly fluctuations of hail precipitation in France</i>
10:00	K. Kosiba, J. Trapp: <i>A comparison of real data simulations to axisymmetric tornadoes</i>
10:15	M. Kunz, M. Puskeiler: <i>Assessment of the hail hazard in Southwest Germany</i>
10:30	Posters / Coffee
Session 7: Remote sensing of severe storms	
Chair: M. Setvák	
11:00	H. Höller, V. Meyer, K. Schmidt, H.-D. Betz: <i>Polarimetric radar and LINET lightning characteristics of severe storms</i>
11:30	M. Pajek, Z. Bielec-Bakowska, P. Struzik: <i>Storms occurrence in Poland – analysis of synoptic stations observations vs. PERUN lightning detection system measurements</i>
11:45	H. B. Bluestein, M. French, I. Popstefanija, R. Bluth, J. Knorr: <i>Observations of tornadogenesis using a mobile, phased-array, Doppler radar</i>
12:00	J. Wurman, K. Kosiba, Y. Richardson, P. Markowski: <i>Preliminary results from dual-Doppler and rapid-scan DOW observations in VORTEX2</i>
12:15	M. Salek, T. Púčik: <i>Flash floods in the Czech Republic in June 2009</i>
12:30	H. Barbosa, A. G. Ertürk: <i>Using Multispectral SEVIRI Radiances at the Top of Deep Convective Storm as a Powerful Tool for Short Predictions in Brazil</i>
12:45	H. P. Roesli: <i>Severe convection over SW Africa and SE Arabia based on SEVIRI imagery</i>
13:00	Lunch
POSTER block II: Sessions 1, 2, 3, 5, 7, 9, 11/12	
Chair: N. Dotzek	
14:00	Posters on display <i>Authors of named sessions in attendance</i>
Session 11/12: Socio-economic aspects	
Chair: B. Feuerstein	
15:00	J. Rauhala, J.-P. Tuovinen, D. M. Schultz: <i>Hail and wind damage in Finland: Societal impacts and preparedness</i>
15:30	S. Schmidt, C. Kemfert, P. Höppe: <i>Tropical cyclone losses in the USA and the impact of climate change — A trend analysis based on data from a new approach to adjusting storm losses</i>
15:45	L. H. Nunes: <i>Media communication of extreme events: a case study for Brazil</i>
16:00	Posters / Coffee

16:30	J. Wurman, K. Kosiba: <i>Comparisons of low level radar winds, in situ 1-m winds, and damage in tornadoes</i>
16:45	V. Beck, N. Dotzek: <i>Reconstruction of near-surface tornado wind fields from forest damage</i>
17:00	J. L. Sánchez, B. Gil, L. López, E. García-Ortega: <i>Radar parameters determining the kinetic energy of hail precipitation in the Iberian Peninsula</i>
17:15	A. Guerrero, M. van de Poll, K. Nzerem: <i>The RMS U.S. and Canada Severe Convective Storm Model</i>
17:30	A. Kulmhofer: <i>Research aspects of Crisis Prevention and Risk & Crisis Management in Enterprises - Empirical data from Austrian Enterprises</i>
17:45	N. Wever, G. Groen, R. Jilderda, R. Leander, D. Wolters: <i>Climate and climate scenarios for Mainport Schiphol</i>
18:00	End of presentations
18:15	Side meeting (<i>Bürgerzimmer</i>): ESSL General Assembly
Session 13: Videos and pictures of severe convective weather	
Chair: O. van der Velde / A. M. Holzer	
19:30	Á. Molnár: <i>Tornado chasing in Hungary - the tornadic supercell on the 20th of May 2008</i>
19:50	M. Korosec: <i>Evening session: Pictures and videos of severe convective weather</i>
20:10	P. Simeonov, T. Velikov: <i>Pictures from some hazardous events in Bulgaria: heavy hail, extreme rainfall, and flash floods, and tornado Kostandenets video-clip</i>
20:30	N. N. et al.: <i>Title</i>
21:00	End of day 4

Friday, 16 October 2009	
08:30	Registration
Session 5A/B: Forecasting and nowcasting of severe storms	
Chair: J. L. Sánchez	
09:00	M. Xue: <i>Convective-scale Data Assimilation and Numerical Weather Prediction at the Center for Analysis and Prediction of Storms: A Status Update</i>
09:15	V. Homar, D. J. Stensrud: <i>'À la carte' ensemble perturbations with customizable scale and amplitude</i>
09:30	J. S. Kain, S. J. Weiss, M. C. Coniglio, M. Xue, F. Kong, M. Weisman, M. Pyle, R. Sobash, C. Schwartz, D. Bright, J. Levit, G. Carbin: <i>New developments in applied research for severe convection forecasting in the Hazardous Weather Testbed, Norman, OK, U.S.A.</i>
09:45	P. K. Wang: <i>A cloud model study of wind shear effect on the satellite observed storm top IR features</i>
10:00	M. Reyniers, L. Delobbe, P. Dierickx, M. Thunus, C. Tricot: <i>Recent advances in precipitation nowcasting at the RMI of Belgium: storm severity product</i>
Session 3: Severe weather climatology and hazard assessment	
Chair: P. Groenemeijer	
10:15	M. Kiguchi, Y. Yamane, N. Eguchi, T. Hayashi, T. Oki: <i>The moisture variability during pre-monsoon over Bangladesh</i>
10:30	Posters / Coffee
11:00	A.-J. Punkka, D. M. Schultz, M. Bister: <i>High-Latitude Mesoscale Convective Systems: An 8-yr climatology of Summertime MCSs in Finland</i>
11:15	J. Rauhala, D. M. Schultz: <i>Synoptic climatology of tornado environments in Finland</i>
11:30	M. Sioutas: <i>A tornado and waterspout climatology for Greece</i>
11:45	O. Suzuki, H. Yamauchi, M. Nakazato, H. Inoue, K. Kobayashi, H. Murai: <i>Statistics on tornado and other hazardous winds in Japan</i>
12:00	M. Kunz, S. Mohr: <i>Trends of hailstorm frequency and atmospheric characteristics in southwest Germany</i>
12:15	Z. Petrosyan: <i>Thunderstorm-related extreme weather in Armenia</i>
Closing Session	
Chair: N. Dotzek	
12:30	N. Dotzek: <i>ECSS 2009 wrap-up & conclusions, Heino Tooming Award 2009</i>
12:50	N. N.: <i>Introduction to the 6th ECSS in 2011: Venue, time and topics</i>
13:00	End of ECSS 2009 conference

POSTERS

01. Theory of convection, atmospheric instability, and synoptic or orographic forcing	
01.01	I. Gladich, I. Gallai, D. B. Giaiotti, F. Stel: <i>On the evening onset of deep moist convection in complex orography</i>
01.02	M. Nicolini, Y. García Skabar: <i>Diurnal cycle in convergence patterns in the boundary layer east of the Andes and convection</i>
01.03	K. Riemann-Campe, R. Blender, N. Dotzek, K. Fraedrich, F. Lunkeit: <i>Global persistency distributions of CAPE and CIN</i>
01.04	L. Schielicke, P. Névir: <i>Towards a power law distribution of tornadoes and cyclones and the relation to the Gutenberg-Richter law of earthquakes</i>
02. Dynamics, microphysics and electrification of severe storms	
02.01	D. Betten, M. Biggerstaff, K. Kuhlmann, C. Ziegler, D. MacGorman: <i>Rear-flank downdraft evolution in the 29 May 2004 Geary, Oklahoma tornadic supercell thunderstorm</i>
02.02	E. Fiori, A. Parodi, F. Siccardi: <i>Uncertainty in prediction of deep moist convective processes: turbulent parameterizations, microphysics and grid-scale effects</i>
02.03	K. Sassa, S. Takemura: <i>Experimental simulation for examining flow conditions of tornadogenesis</i>
02.04	M. Fernández-Raga, M. González-Colino, C. Palencia, A. I. Calvo, A. Castro, R. Fraile: <i>Moment-energy relationship: a criterion to distinguish between convective and stratiform precipitation</i>
02.05	R. Fraile, M. Fernández-Raga, M. González-Colino, C. Palencia, A. I. Calvo, A. Castro: <i>Error in the sampling area of an optical disdrometer: consequences in computing other variables</i>
02.06	M. González-Colino, M. Fernández-Raga, J. M. Riera, P. García-del-Pino, A. Benarroch, C. Palencia, A. I. Calvo, A. Castro, R. Fraile: <i>Vertical distribution of raindrop sizes: a case study</i>
02.07	N. Pineda, J. Bech, T. Rigo, J. Montanyà, O. van der Velde: <i>Total lightning analysis of a tornadic severe weather event</i>
03. Severe weather climatology and hazard assessment	
03.01	S. Fernández-González, S. del Rio, M. Fernández-Raga, A. Castro, A. I. Calvo, R. Fraile: <i>Relationship between precipitation and weather types in León, Spain (1948-2008)</i>
03.02	D. Foris, S. Spanos: <i>Hailstone to hailstorm relation in northern Greece</i>
03.03	P. V. Salio, Y. Garcia Skabar, M. Nicolini: <i>The role of the low-level jet in flash flood event over central Argentina</i>
03.04	P. Simeonov, I. Gospodinov, R. Petrov, L. Bocheva: <i>Recent severe rain/hailstorms with tornado events in Bulgaria (2001-2008)</i>
03.05	M. Aran, J. C. Peña: <i>Atmospheric circulation patterns associated with hail events in Lleida (Catalonia)</i>
03.06	E. Lupikasza, Z. Bielec-Bakowska: <i>Atmospheric condition and severe storms occurrence in Poland</i>

03.07	L. Bocheva, I. Gospodinov, P. Simeonov, T. Marinova: <i>On change in extreme daily precipitation characteristics in Bulgaria (1961 – 2007)</i>
03.08	E. Paixao, H. Auld, D. MacIver, M. Monirul: <i>Estimation of rainfall Intensity-Duration-Frequency curves using radar rainfall data for South-Central Ontario</i>
03.09	E. García-Ortega, L. López, J. L. Sánchez: <i>Atmospheric patterns associated with hailstorm days in the Ebro Valley (Spain)</i>
03.10	S. Gaztelumendi, K. Otxoa de Alda, J. Egaña, I. R. Gelpi, D. Pierna, S. Carreño: <i>Summer showers characterization in the Basque Country</i>
03.11	L. Kolendowicz: <i>Circulation of the atmosphere and days with thunderstorm in Poland in the period 1971-2008</i>
03.12	C. M. Matsudo, P. V. Salio: <i>Distribution of extreme events associated with deep convection</i>
03.13	C. Palencia, J. M. Franco, D. Giaiotti, F. Stel, A. Castro, R. Fraile: <i>Superimposed hailfalls over a hailpad</i>
03.14	B. Reinhardt, N. Dotzek, E. Faust.: <i>Effects of the El Niño - Southern Oscillation (ENSO) on heavy precipitation and associated losses at the North American west coast</i>
03.15	S. Spanos, D. Foris: <i>A Climatic Investigation of Intense Precipitation associated with 500 hPa cyclones which are affecting the Greek territory during warm period of the year</i>
03.16	V. Tymofiev: <i>Climatology of extreme precipitation in Ukraine, large-scale atmospheric circulation and assessment of weather-related risks</i>
03.17	Z. Cao, J. Ma: <i>Summer severe rainfall frequency trend and variability over Ontario, Canada</i>
03.18	O. Svabik: <i>Severe Storm Regions in Austria on the basis of the TORRO hailstorm intensity scale</i>
03.19	C. Brendel, B. Ahrens: <i>Convection over the Taunus Mountains and vicinity: Distribution and Tracks</i>
03.20	B. C. Chitoroiu, M. Tomescu: <i>Similarities between severe storms produced along the Romanian Black Sea coast</i>
04. Climate change impacts on sever storms, development of adaptation concepts	
04.01	D. Pocakal: <i>Hailpad data analysis for continental part of Croatia</i>
04.02	N. Dotzek, the RegioExAKT consortium: <i>RegioExAKT - Regional Risk of Convective Extreme Weather Events: User-oriented Concepts for Trend Assessment and Adaptation</i>
04.03	J. Sander, N. Dotzek: <i>Climate change impacts on severe convective storms over Europe</i>
04.04	M. Kasperski, E. Agu, N. Aylanc: <i>Wind loads and climate change – significance of gust fronts in the structural design</i>
04.05	A. Matthies, G. C. Leckebusch, T. Schartner, J. Sander, P. Névir, U. Ulbrich: <i>Extreme weather events in southern Germany – Climatological risk and development of a large-scale identification procedure</i>
04.06	P. Chatterjee, U. K. De, D. Pradhan: <i>Study of weather change due to loss of Sunderban Delta Region</i>
04.07	S. Grünwald, H. E. Brooks: <i>Influence of sounding derived parameters on the strength of tornadoes in Europe and the USA from reanalysis data</i>

05. Forecasting, nowcasting and warning of severe storms	
05.01	G. Held, A. M. Gomes, M. Teixeira, J. M. Bassan: <i>Predictability of Extreme Storm Events in the State of São Paulo, Brazil</i>
05.02	S. Sharma, D. Dutta, J. Das, R. M. Gairola: <i>Nowcasting of severe storm at a station by using the soft computing techniques to the radar imagery</i>
05.03	J. Saraiva, J. L. M. Lopes, R. H. Braga, G. G. Ribeiro: <i>Extreme Events in the Amazônia Region during the Rainy Season of 2009</i>
05.04	A. Udogwu, J. B. Omotosho, S. Gbuyiro, I. Ebenebe, G. C. Osague, E. Olaniyan: <i>Forecasting and Nowcasting of Severe Storms and their Preferred Tracks across West Africa</i>
05.05	T. Salami, O. S. Idowu, E. E. Balogun: <i>West African weather system in the development of tropical cyclones</i>
05.06	P. Bonelli, P. Marcacci, E. Bertolotti, E. Collino, G. Stella: <i>Nowcasting and assessing thunderstorm risk on Lombardy Region (Italy)</i>
05.07	K. J. Rae: <i>Triggering of deep convection by low-level boundaries</i>
05.08	J. L. Sánchez, L. López, B. Gil-Robles, J. Dessens, C. Bustos, C. Berthet: <i>Short-term forecast of hail precipitation parameters</i>
05.09	Z. Sokol, P. Pesice: <i>Precipitation forecast by the COSMO NWP model using radar and satellite data</i>
05.10	Z. Polyánszky: <i>Non Mesocyclone Tornadoes in Hungary</i>
05.11	M. Salvati, D. Berlusconi: <i>A statistical study of stability indices as convective weather predictors in Lombardia</i>
05.12	R. Groenland, R. van Westrhenen: <i>Diagnostic tool convective modes</i>
06. Numerical studies, e.g. of convective initiation, storm life cycles and phenomena	
06.01	B. C. Vermeire, L. G. Orf, E. Savory: <i>A comparison of transient impinging jet and cooling source downburst models</i>
06.02	B. R. S. B. Basnayake, S. Das, M. K. Das, M. Rahman, M. A. Sarker, M.A.R. Akand: <i>Composite characteristics of severe thunderstorms over Bangladesh simulated by WRF-ARW Model</i>
06.03	M. Curic, D. Janc, N. Kovacevic: <i>The influence of boundary layer conditions on storm life cycles</i>
06.04	P. Markowski, N. Dotzek: <i>Numerical simulations of supercells over idealized orography</i>
06.05	K. Tsuboki, A. Sakakibara: <i>Numerical simulation of tornado-scale vortices occurred in a winter cold-air outbreak over the Sea of Japan</i>
06.06	U. Wissmeier, R. Goler: <i>An investigation of a severe multicellular storm in the tropics</i>
06.07	A. Bertozzi, P. Randi: <i>Forecasting skill study of different non-hydrostatic meteorological model configurations in severe convective events simulation</i>
06.08	N. Huseynov, B. Malikov: <i>Parameterization and development of statistical model for meteorological elements of convective instability</i>
06.09	F. Espejo, E. Alvarez, F. Cortes, C. Lafragüeta: <i>Characteristics of convective processes in inland Northeast Spain</i>

06.10	P. Knippertz, J. Trentmann, A. Seifert: <i>High-Resolution Simulations of Convective Cold Pools over the Northwestern Sahara</i>
06.11	P. Randi, A. Bertozzi: <i>A right flank supercell in Romagna; Splitting storm system case study</i>
06.12	K. Wapler, A. Seifert, B. Ritter: <i>Validation of deep convection in the convective-scale NWP model COSMO-DE</i>
06.13	H. Choi, D. S. Choi: <i>Generation of Windstorm in the Eastern Mountainous Coast of Korea</i>
07. Remote sensing of severe storms, e.g. by satellite, radar and lightning detection	
07.01	C. Georgiev, P. Santurette: <i>Diagnosis of atmospheric environment favourable for deep moist convection by using satellite imagery</i>
07.02	S. Sharma, D. Dutta, J. Das, R. M. Gairola: <i>The characteristics of Mesoscale Convective Systems over Tropics as observed from TRMM Microwave Imager</i>
07.03	O. Kryvobok: <i>Usefulness of using of satellite data for nowcasting and short-range forecasting of severe weather in Ukraine</i>
07.04	A. Mauricio Agostinho: <i>Radar estimates of kinetic energy from rain events as adjusted by disdrometric measurements</i>
07.05	V. Bliznak, Z. Sokol: <i>Relationships between data measured by meteorological radars and Meteosat Second Generation for convective storms</i>
07.06	O. Brujic, A. Pjevic: <i>Detection and analysis of supercell – case study May 22nd 2007</i>
07.07	M. Clark: <i>Doppler radar observations of a tornadic squall line over southeast England</i>
07.08	F. T. Couto, P. R. P. Foster: <i>Hailstorm in extreme south of Brazil: A case study of January 2009</i>
07.09	S.-E. Enno: <i>Spatial and temporal distribution of cloud-to-ground lightning over Estonia 2005-2008</i>
07.10	A. G. Ertürk, H. Barbosa: <i>Detecting V-storms using Meteosat Second Generation SEVIRI image and its applications: A case study over western Turkey</i>
07.11	S. Gaztelumendi, J. Lopez, J. Egaña, J. A. Aranda: <i>Preliminary results from lightning detection in Basque Country</i>
07.12	E. Goudenhoofdt, M. Reyniers, L. Delobbe: <i>Statistical analysis of convective storm tracks using volume reflectivity measurements from a C-band radar</i>
07.13	O. Kryvobok: <i>Combination of different kind of satellite data for estimation of heavy precipitation over Ukraine in summer 2008</i>
07.14	P. Novak, H. Kyznarova: <i>Utilization of lightning data in the Czech Hydrometeorological Institute</i>
07.15	P. Pešice: <i>Parallax correction of Meteosat images using temperature profiles, radar echo-tops and combined method</i>
07.16	N. Pineda, M. Aran, A. Andrés, M. Busto, C. Farnell: <i>Life cycle analysis of a severe hailstorm in the Ebro Valley (Catalonia, NE Spain)</i>

07.17	M. Putsay, A. Simon, I. Szenyán, J. Kerkmann, G. Horváth: <i>Case study of the 20 May 2008 tornadic storm in Hungary – Remote sensing features and NWP simulation</i>
07.18	M. Radová, M. Setvák, H. Kyznarová: <i>MSG IR 10.8 observations of features at tops of convective storms – 2008 statistics and important cases</i>
07.19	L. Trapero, J. Bech, T. Rigo, O. Argemí, N. Pineda, O. Esteban: <i>Analysis of improved radar precipitation estimates in the Pyrenees area</i>
07.20	T. Dimitrova, R. Mitzeva, A. Todorova: <i>Lightning activity in rain and hail bearing thunderstorms over Bulgaria</i>
07.21	L. Vidal, P. Salio: <i>Characterization of extreme storms on the south-eastern South America from using TRMM observations</i>
07.22	M. A. Antonio: <i>Radar monitoring of dam-induced organized rain showers in tropical Brazil</i>
08. (Extra-)tropical cyclones: embedded thunderstorms and large-scale wind fields	
08.01	C. Gatzen, T. Púčik, D. Ryva: <i>Comparison of two cold-season mesoscale convective systems</i>
08.02	S. Gaztelumendi, J. Egaña: <i>Klaus over Basque Country: local characteristics and Euskalmet operational aspects</i>
08.03	A. Schneidereit, K. Riemann-Campe, R. Blender, K. Fraedrich, F. Lunkeit: <i>North-Atlantic extra-tropical cyclone intensities, wind fields, and CAPE</i>
08.04	J. Egaña, S. Gaztelumendi: <i>Klaus overview and comparison with other cases affecting Basque country area</i>
08.05	N. Tartaglione, R. Caballero: <i>A numerical study of the windstorm Klaus: role of the sea surface temperature and domain size</i>
09. Severe storm case studies and field campaigns, e.g. COPS, THORPEX, VORTEX2	
09.01	M. Stojanovic: <i>The Balkan cyclone</i>
09.02	F. Fusto: <i>The January 2009 precipitation extremes over Calabria region, Southern Italy</i>
09.03	A. M. Gomes, G. Held: <i>Severe Winter Storms over the Western and Central State of São Paulo, Brazil</i>
09.04	M. Löffler-Mang: <i>HARE – A new intelligent hail recorder for networks and field campaigns</i>
09.05	M. Parker, A. French, C. Letkewicz, M. Morin, K. Rojowsky, D. Stark, G. H. Bryan: <i>Mobile sounding measurements of the near storm environment during VORTEX2</i>
09.06	Y. Richardson, P. Markowski, J. Wurman, K. Kosiba: <i>Mobile mesonet observations in VORTEX2</i>
09.07	K. Kosiba, J. Wurman, Y. Richardson, P. Markowski: <i>Mesocyclone-scale mobile radar observations in VORTEX2</i>
09.08	F. M. El Ashmawy, A. L. Essawy: <i>Thunder Activity With Heavy Rain Over Egypt In Early Spring</i>
09.09	J. Egaña, S. Gaztelumendi, D. Pierna, I. R. Gelpi, K. Otxoa de Alda: <i>Convective storms over Basque Country: June 2008 cases study</i>
09.10	K. Friedrich, R. Humphrey, J. Wurman, K. Kosiba: <i>Study of microphysical and thermodynamic structures within supercell thunderstorms</i>
09.11	H. Y. Inoue, K. Kusunoki, W. Mashiko, S. Hayashi, H. Yamauchi: <i>High resolution X-band Doppler radar observation of mesocyclones along the</i>

	<i>convergence line</i>
09.12	I. Marcinoniene: <i>Very strong convection at the Baltic coast of Lithuania on 25 November 2008</i>
09.13	K. Kusunoki, H. Inoue, W. Mashiko, S. Hayashi, W. Kato, K. Araki, K. Bessho, S. Hoshino, M. Nakazato, T. Imai, Y. Hono: <i>Wind gust and storm evolutions observed during the Shonai Area Railroad Weather Project: A preliminary survey</i>
09.14	D. Placko-Vrsnac, N. Strelec-Mahovic: <i>A case study of severe convection over Central Europe with a detailed analysis of development over Croatia on 22nd and 23rd June 2007</i>
09.15	T. Púčik, M. Francová, D. Rýva, M. Kolář: <i>Derecho on the 25th June 2008</i>
09.16	A. Simon, J. Kanák, A. Sokol, M. Putsay, L. Uhrínová, K. Csirmaz: <i>Case study of severe windstorm over Slovakia and Hungary on 25 June 2008</i>
09.17	H. Tuschy, M. Hagen, G. J. Mayr: <i>Examination of two severe thunderstorm events in southern Germany</i>
09.18	B. White, A. Blyth, J. Marsham, K. Browning: <i>Comparison of detailed model results of MCS with radar observations during CSIP</i>
10. Severe weather reporting and databases, e.g. applied to forecast evaluation	
10.01	B. Antonescu, A. Bell: <i>A century of severe storms reports in Romania</i>
10.02	M. Sioutas, W. Szilagyi, A. Keul: <i>The International Centre for Waterspout Research (ICWR)</i>
10.03	B. Wrona: <i>The Meteorological and Morphological Grounds for the Severe Precipitation in the Upper and Middle Odra Basin</i>
10.04	M. Gayà: <i>Tornadoes and Severe Storms in Spain</i>
10.05	R. Araki, L. H. Nunes: <i>Ancient Natural Disasters Triggered by Severe Weather in São Paulo, Brazil</i>
10.06	R. Doe: <i>A Coastal Storms Database: Advances in Coastal Storm Data Management</i>
10.07	B. Gil-Robles, J. L. Sánchez, E. García-Ortega, J. L. Marcos, L. López: <i>Signature of hail precipitation on the ground</i>
10.08	J. Mateo, C. Antón, M. Aran, J. Bech, A. Sairouni: <i>Towards an integrated hail database: a comparative study of different sources of information in Catalonia</i>
10.09	R. Volny: <i>Severe convective weather cases on the territory of the Czech Republic – monitoring, and documentation, database – current status and near future</i>
11. Socio-economic aspects, e.g. damage analysis, wind speed vs. damage relation	
11.01	M. Mitic, Z. Vucinic, Z. Babic: <i>Cost-benefit Analysis of the Hail Suppression Project in Serbia</i>
11.02	D. H. Candido, L. H. Nunes, G. Held: <i>Impact of two severe storm systems over the São Paulo State, Brazil</i>
11.03	C. Welker, N. Dotzek, E. Faust: <i>Variability of Indo-Pacific tropical cyclone activity and related socioeconomic disasters</i>
11.04	I. Gladich, I. Gallai, D. B. Giajotti, G. M. Morgan, F. Stel: <i>Severe Local Storms Cultural Heritage</i>

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12. Socio-economic aspects, e.g. emergency response and risk management, security ...	
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12.03	C. von Haustein, M. Kasperski: <i>RegioExAKT: Regional classification of the wind conditions for Germany in present and future; Cartographical view of Trends for extreme wind conditions</i>
12.04	J. Gonçalves: <i>The severe rain and damages economics in areas of state of Espirito Santo, Brazil</i>

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