Congress 2015 Resolution 9 Cataloging Initiative, Global Agenda and Status of the Proposal

Common Alerting Protocol (CAP) / Impact Based Forecast (IBF) Technical Meeting

(WMO, Geneva, Switzerland, 3 - 4 December, 2018)

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

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WMO

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

Geneva, Switzerland

Resolution 9 (Cg-17)

IDENTIFIERS FOR CATALOGUING EXTREME WEATHER, WATER AND CLIMATE EVENTS

Decides to standardize weather, water, climate, space weather and other related environmental hazard and risk information and develop identifiers for cataloguing weather, water and climate extreme events;

Requests the Executive Council to provide oversight on the standardization of hazard information for loss and damage assessment;

Requests the Commission for Basic Systems to develop, in collaboration with all technical commissions and regional associations, a proposal on standardized identifiers for cataloguing hazardous events for consideration by the Executive Council;

Requests the Secretary-General to take the necessary actions, within the available budgetary resources, to facilitate the work on this important issue.

There is a growing importance within global agenda to track losses and damages associated with extreme events:

- **The United Nations Sustainable Development Goals,**
- **The United Nations Framework Convention on Climate Change Paris Agreement, The Sendai Framework for Disaster Risk Reduction, and**
- **The Warsaw International Mechanism on Loss and Damage.**

The United Nations Sustainable Development Goals SDG No.11 and No.13:

Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

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Sendai Framework for Disaster Risk Reduction

The Sendai Framework aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors. The Sendai Framework set several targets to be achieved by 2030, including a substantial reduction of global disaster mortality, the number of affected people and direct disaster economic loss through, inter alia, the increase in the availability of and access to multi-hazard early warning systems and disaster risk information and assessments.

The Paris Agreement

Parties recognize the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage.

The Warsaw International Mechanism on Loss and Damage

The Warsaw international mechanism on loss and damage associated with impacts of climate change, including extreme events and slow onset events facilitates and promotes, inter-alia, understanding of and expertise in approaches to address loss and damage associated with the adverse effects of climate change, and the collection, sharing, management and use of relevant data and information

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Status of the Proposal Development

1) Establishment on an Inter-Program Task Team

In 2016, EC Decision 4(EC-68) endorsed the EC-WG/DRR proposal to establish an **Inter-Programme Task Team** on Cataloguing Extreme Weather, Water and Climate Events (**IPTT-CWWCE**) as a coordination mechanism co-chaired by the Commission for Basic Systems (CBS) and the Commission for Climatology (CCl).

2) International Workshop on Cataloguing and managing information on extreme weather, water and climate Events

- **November 2017, Geneva**

Convened by CCl and CBS with participants from both communities, EC-WG/HRA, EC-WG/MHEWS, CRED, UNISDR as well as several subject matter experts.

- **Key Outcome**

A proposal for an approach for responding to Res.9 (Cg-17) with endorsement by IPTT-CEWWCE

3) Formal discussion at RA-VI, February 2018

RA-VI, February 2018 Decided to test the proposed approach for cataloguing high impact events – involving a standard typology of high impact event types and the assignment of a Universal Unique Identifier (UUID),

The test phase should start in 2018 and continue over a sufficient period to deliver results and recommendations relevant for operationalization of the approach and final adoption at eighteenth session of the World Meteorological Congress in 2019;

The Regional Climate Centre RA VI-Network to consider testing the UUID on high impact events, such as storms and associated extreme precipitation, wind, snow, hail and cold events; summer heat waves, floods, droughts and others;

4) WMO Regional Association VI Test Phase Kickoff Meeting

1. RA-VI held a kickoff meeting from 7-9 July 2018 in Offenbach, Germany which 20 countries participated to develop implementation guidance to test the proposal.
2. Participants agreed that the test phase for cataloguing of high impact events should be based on the following principles, Including:

4) Continued:
RA-VI Test Phase Principles

a. Keep it simple and feasible consider the costs, resource and time to implement
b. Preserve the right of each country to state how they choose to record and warn for hazards
c. Do not categorise hazards or events into groups (e.g. , meteorological, hydrological, climate)
d. Initially restrict to Hydro-meteorological hazards
e. Do NOT quantify and qualify hazard definition or express its severity (e.g. extreme, heavy, high)
f. Align to CAP for warnings to avoid duplication, confusion and misinterpretation

5) The Approach

- Centres on identifying events uniquely, while at the same time being able to group together events which are hydro-meteorologically related,
- Involves assigning a universally unique identifier (UUID) number to each event including key attributes of the event into a data record, (other attributes are to be included that provide context such as description, local identifier (e.g. local or regional names of storms), and links to other events which would enable clustering of events (e.g. events linked to other events) to mirror larger scale (synoptic) phenomena)
- A standard living list defining typology of high impact events

Key Event Atributes	Description
- UUID	32 Character random sequence
- Identifier	Originator (name of institution that is recording the event)
- Record creation - Event start - Event end	Date & Time
- Event type	From WMO Event Types list (Primary or System)
- Area	Recognized spatial datatype (e.g. Geodatabase, shapefile)
- Headline	From a controlled list
- Description of event	Open text description of event (e.g. winds 45 knots gusting to 55 knots)
- Linkage	UUID reference link to related events (e.g. Storm)
- Status	Status of record (i.e. in progress / complete)

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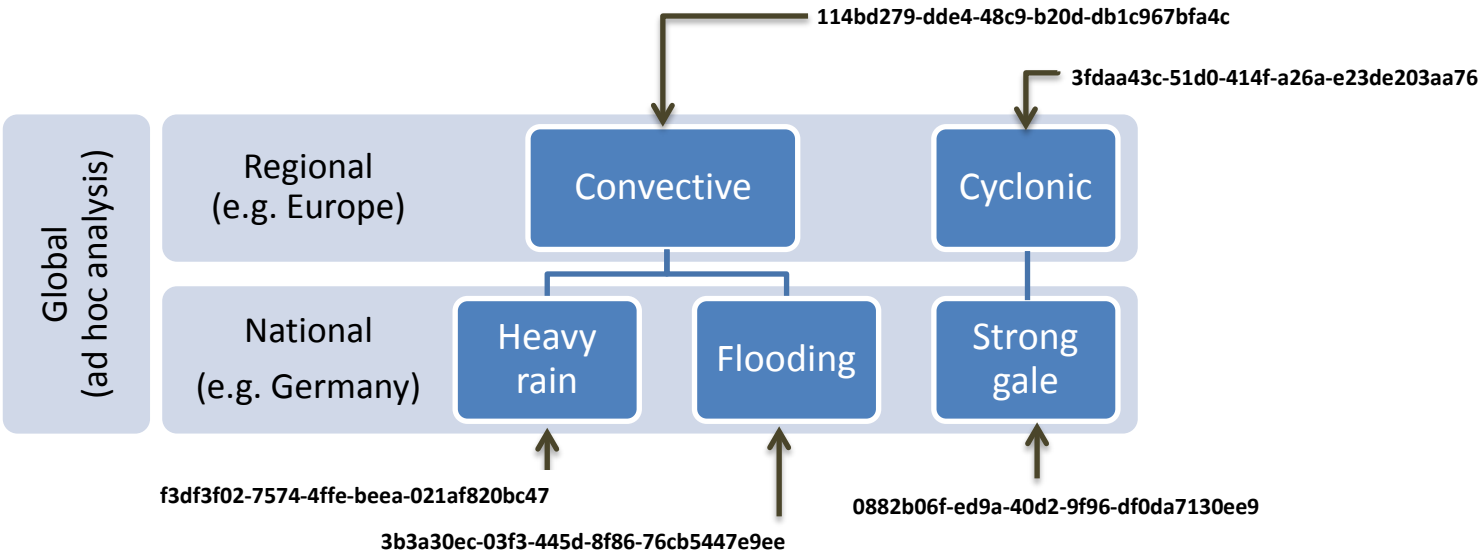
Cascading Event Records

Event UUID: random string of 32 characters



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Primary and System Events List

Primary	System
Rain **Snow** **Temperature** **Hail** **Fog** **Wind** **Frost** **Ice** **Haze** **Dust** **Sand** **Lighting** **Tornado** **Drought** **Floods** **Marine Waves** **Avalanche** **Thunderstorms*[1]**	**Cyclonic** (e.g. Tropical, Extra-tropical cyclone, mid-latitude cyclone) **Anti-cyclonic** **Convective** (thunderstorms)

Partial Headline list

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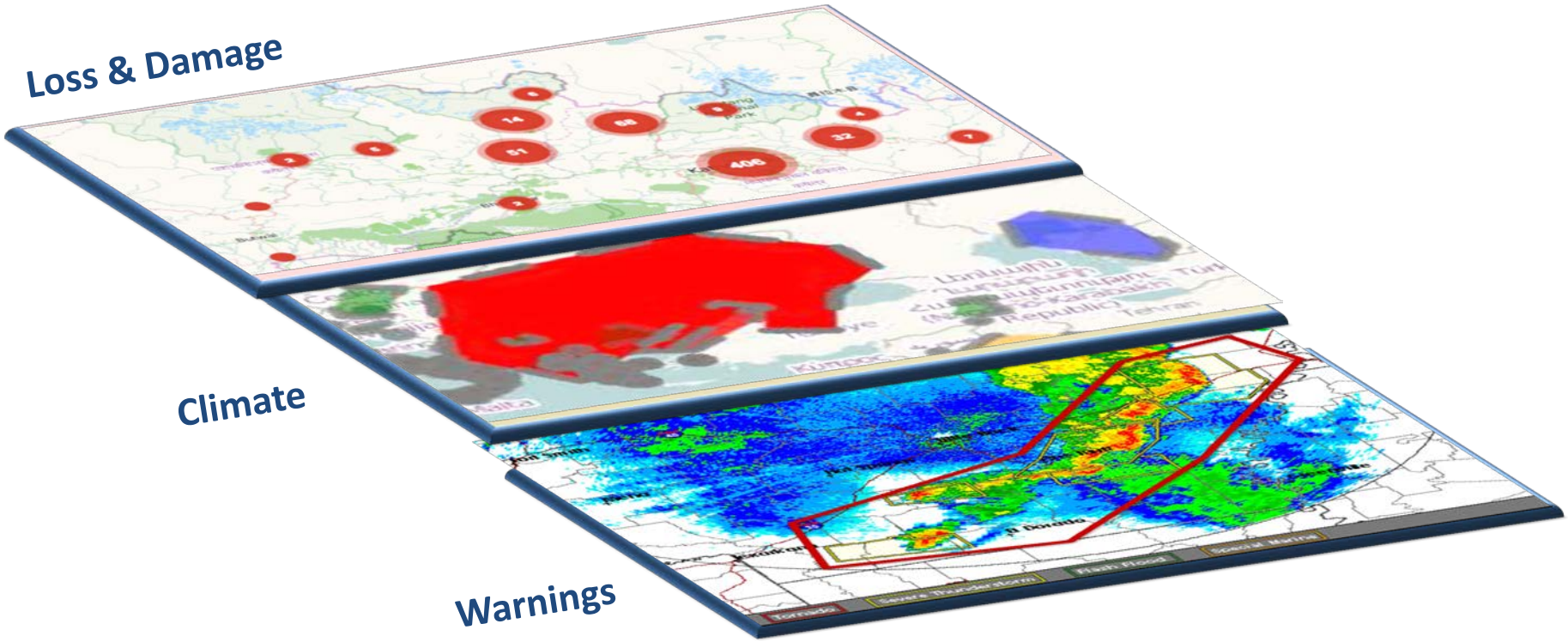
Headline Events List

Headline	
Hoar frost	Single event flood
Gale	Snowmelt flood
Heavy rain	Sand haze
Extreme precipitation	Sand storm
Hurricane	Dust storm
Typhoon	Black carbon
Heavy rain	Brown clouds
Ice Storm	Pollen pollution episode
Snowstorm	Polluted air
Squall	Blizzard
Tropical storm	Dry Spell
Strong gale	Wet Spell
Subtropical Storm	Cold wave
Hydrological drought	Heatwave
Meteorological drought	Landslide/Mudslide
Coastal flood	Mud flow
Estuarine flood	Acid rain
Flash flood	Storm surges
Fluvial (riverine) flood	Tsunami
Ice and debris-jam flood	Avalanche
Multiple event flood	Downburst
Seasonal flood	

Layering of Information Enables New Possibilities for Analysis and Application



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RA-VI Test Phase Database

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Attribute table

Tabelle

Storm

UUID	System_UUID	Record Cr	Identifier	Start_Time	End Time	Event	Event Ty	Area	Headline	Description	Linkage	Status	Post proc	Alph	Name_ISO	ISO_Nu
469053f4-be33-11e8-a355-529269fb1459	0d4bd50e-e98b-11e8-9f32-f2801f1b9fd1	22.09.2018	Danish Meteorol	21.09.2018	21.09.201	Marine	Cyclonic	Denmark (Esbjerg, Ten	Coastal flood	The storm "Knud" pas	46905a5c-be33-11e8-a355-529269fb1459	Complete	Validated	DK	Denmark	208
46905a5c-be33-11e8-a355-529269fb1459	0d4bd50e-e98b-11e8-9f32-f2801f1b9fd1	22.09.2018	Danish Meteorol	21.09.2018	21.09.201	Wind	Cyclonic	Denmark (Nordjylland,	Subtropical Stor	The storm "Knud" is d	469053f4-be33-11e8-a355-529269fb1459	Complete	Validated	DK	Denmark	208
d56f64f1-a516-4f6b-97f9-d9039722cddb	0d4bd50e-e98b-11e8-9f32-f2801f1b9fd1	26.09.2018	Royal Netherlan	21.09.2018	21.09.201	Wind	Convectiv	Netherlands (Drenthe,	Squall	Unstable polar mariti	<Null>	Complete	Validated	NL	Netherland	528
7af52bab-de29-44d5-8fd4-de28fe527eb1	0d4bd50e-e98b-11e8-9f32-f2801f1b9fd1	08.10.2018	Met Norway	21.09.2018	22.09.201	Wind	Cyclonic	Akershus, Aust_Agder	Strong gale	Locally strong wind gu	46905a5c-be33-11e8-a355-529269fb1459	Complete	Validated	NO	Norway	578
9fb9348e-e983-11e8-9f32-f2801f1b9fd1	0d4bd50e-e98b-11e8-9f32-f2801f1b9fd1	08.10.2018	Deutscher Wett	22.09.2018	24.09.201	Wind	Cyclonic	Feldberg, Fichtelberg,	Gale	The storm caused ove	<Null>	Complete	Validated	DE	Germany	276
23ba20e5-fbd5-4522-8651-4c4c18739ebb	0d4bd50e-e98b-11e8-9f32-f2801f1b9fd1	23.09.2018	Ukrainian Hydro	23.09.2018	24.09.201	Wind	Cyclonic	West part of territory of	Strong wind	The gust hit with a win	<Null>	Complete	Validated	UA	Ukraine	804
0e1b29c8-e375-4626-8703-df2e99a04fb5	0d4bd50e-e98b-11e8-9f32-f2801f1b9fd1	23.10.2018	MeteoLux	23.09.2018	23.09.201	Wind	Convectiv	Sandweiler	Squall	The squall was linked	<Null>	Complete	Validated	LU	Luxembour	442
e7741e1c-c7ad-11e8-a8d5-f2801f1b9fd1	<Null>	04.10.2018	Danish Meteorol	02.10.2018	03.10.201	Wind	Cyclonic	Denmark (Tønder, Kalu	Gale	A windstorm with a wi	<Null>	Complete	Validated	DK	Denmark	208
eb6ff120-d9c9-11e8-9f8b-f2801f1b9fd1	<Null>	27.10.2018	Danish Meteorol	06.10.2018	06.10.201	Wind	Cyclonic	Denmark (Kalundborg,	Strong gale	The wind storm gustin	<Null>	Complete	Validated	DK	Denmark	208
eb6ff77e-d9c9-11e8-9f8b-f2801f1b9fd1	<Null>	27.10.2018	Danish Meteorol	10.10.2018	10.10.201	Wind	Cyclonic	Denmark (Frederikshav	Strong gale	The wind storm gustin	<Null>	Complete	Validated	DK	Denmark	208
299c7000-a89d-440a-a7c5-e1dad942a395	<Null>	21.10.2018	Turkish State M	15.10.2018	20.10.201	Dust	Cyclonic	Adiyaman, Aksaray, A	Dust storm	The dust storm reduc	<Null>	Complete	Validated	TR	Turkey	792
eb700264-d9c9-11e8-9f8b-f2801f1b9fd1	<Null>	27.10.2018	Danish Meteorol	15.10.2018	18.10.201	Wind	Cyclonic	Whole Denmark	Gale	The storm with a wind	<Null>	Complete	Validated	DK	Denmark	208
265f4b40-dda4-11e8-9f8b-f2801f1b9fd1	<Null>	01.11.2018	Danish Meteorol	27.10.2018	27.10.201	Wind	Cyclonic	Norddjurs (Midtjylland)	Gale	The wind storm gustin	<Null>	Complete	Validated	DK	Denmark	208
265f4f5a-dda4-11e8-9f8b-f2801f1b9fd1	<Null>	01.11.2018	Danish Meteorol	28.10.2018	28.10.201	Wind	Cyclonic	Varde (Syddanmark)	Strong gale	The wind storm gustin	<Null>	Complete	Validated	DK	Denmark	208

20-25th: Storm Knud/Bronagh crossed Norway, Denmark, Netherlands, Luxumboug, Germany, and Ukraine. Since the events come from the same weather systems, all events get their own number.

Tabelle

RainPrimary

UUID	System_UUID	Record Cre	Identifier	Start Time	End Time	Even	Event T	Area	Headline	Description	Linkage	Status	Post processi	Alp	Name_IS	ISO_Num
68d67992-f1f7-4842-8a5e-4158e461f139	<Null>	06.10.2018	Turkish State Mete	04.10.2018	05.10.2018	Rain	Cyclonic	Beşikdüzü, Ha	Heavy rain	The daily precipitation wa	<Null>	Complete	Validated	TR	TURKEY	792
f17a204c-9def-4d41-b290-b4934b653e3f	<Null>	16.10.2018	Met Norway	07.09.2018	08.09.2018	Rain	Cyclonic	Oslo	Heavy rain	Locally heavy precipitatio	<Null>	Complete	Validated	NO	NORWAY	578
2c9eee81-9fb6-4010-95a8-749422e845b6	0d4bd50e-e98b-11e8-9f32-f2801f1b9fd1	16.10.2018	Met Norway	25.09.2018	26.09.2018	Rain	Cyclonic	Rogaland	Heavy rain	Locally heavy precipitatio	7af52bab-de29-44d5-8fd4-de28fe527eb1	Complete	Validated	NO	NORWAY	578
928b6db3-521d-4aef-a896-802ed399bddc	<Null>	27.10.2018	Turkish State Mete	25.10.2018	26.10.2018	Rain	Cyclonic	Batman, Bingö	Heavy rain	In the affected areas mea	<Null>	Complete	Validated	TR	TURKEY	792

RA-VI Test Phase Database

Deutscher Wetterdienst
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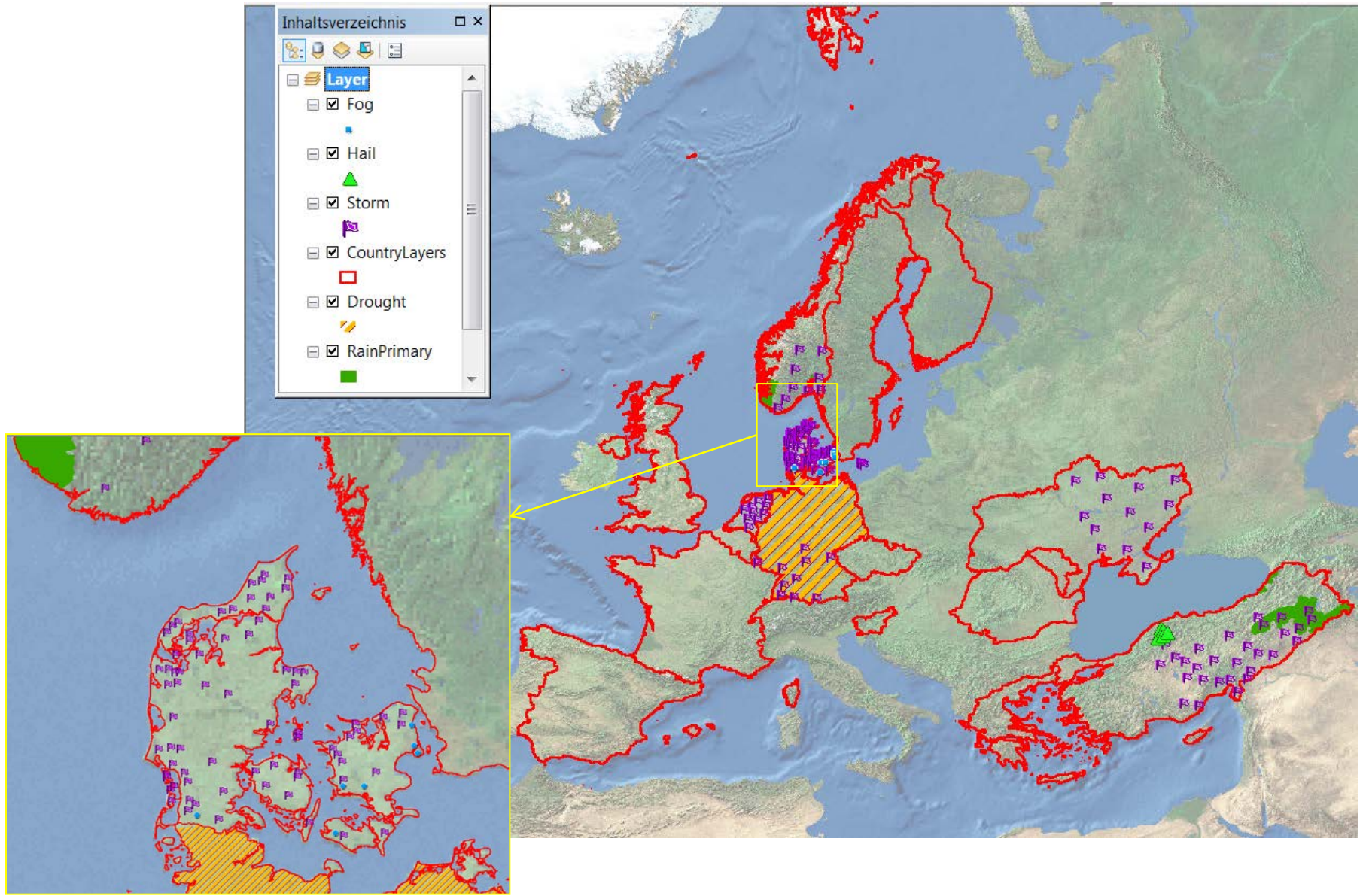

Example of applications

- Tracking policy outcomes by governments
- Risk management (public and private sector)
  - Risk identification (hazard component)
  - Risk reduction (e.g. codes and standards)
  - Risk transfer (insurance, risk facilities, cat bonds)
- Research
  - Tracking trends in event frequency, severity and distribution
  - On causal contributions of hazards, exposure and vulnerability to losses

"If we succeed in implementing this solution we will have done a great service for humankind"

Julio Serje

UNISDR

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WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Thank you

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World Meteorological Organization
Organisation météorologique mondiale

CAP Message Attributes

Issued

Hazard

Severity

Observed/forecasted

Expires

Description

Area polygon

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Severe Event Catalogue

Created by Florian Pappenberger, last modified by Linus Magnusson on Oct 15, 2018

On this space we collect material for evaluation of severe/extreme weather events. The focus is on the meteorological conditions and the forecast performance. The amount of material differs from case to case, and we are not claiming to give the full picture of the cases here. Users are welcome to contribute with material for the cases by using the comment function in the bottom of each page. To suggest a new case to evaluate, please contact us at the email address given below. If you have any initial comments and material, please include them in the mail.

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WMO Resolution 9 (Cg-17)

Decides to standardize weather, water, climate, space weather and other related environmental hazard and risk information and develop identifiers for cataloguing weather, water and climate extreme events- WMO Resolution 9 (Cg-17), 2015

- A typology of the events that would be catalogued and receive unique identifiers (such as droughts, different kinds of floods, heat/cold waves, various types of storms and severe weather, space weather, etc. An initial list of hazard event types has been identified);
- Indices and parameters used/recommended for characterizing and recording each type of event (i.e. its magnitude, location, timing and duration);
- A coding scheme and governance mechanism for assigning a unique identifier to each event,
- Database management systems for recording/cataloguing the events (how the data about the events are stored so that they can be accessed using the unique identifier once it has been assigned).

WORK AREAS AS ENDORSED BY EC-68
FOR CATALOGUING AND MANAGING INFORMATION ON EXTREME WEATHER, WATER AND CLIMATE EVENTS

(a) A typology of the events that would be catalogued and receive unique identifiers (such as droughts, different kinds of floods, heat/cold waves, various types of storms and severe weather, space weather, etc. An initial list of hazard event types has been identified);
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(d) Database management systems for recording/cataloguing the events (how the data about the events are stored so that they can be accessed using the unique identifier once it has been assigned).