Use of risk and loss data for local scale extreme weather events

Holger Starke, 11.10. 2018
Hail

One of the biggest risks in agriculture

- Very variable in time and scale
- Difficult to predict
- Sometimes no possibility to take precautions
- Severe damages in agriculture, especially green houses, horticulture and viniculture
Data collection and analysis

Data processing

Before hail event
- Weather and Climate data
- Informations on fields

During hail event
- Probability of hail analyses
- Hail notification
- Instant press release

After hail event
- Press release
- Claims settlement
- Data evaluation
Data collection and analysis

Main data sources

- ZAMG
- OpenStreetMap
- AgrarMarkt Austria
- basemap

... and others
Data collection and analysis

Initial data input

Weather and Climate data
- Forecasts
- Radar imagery
- Weather warnings

Information and data on fields
- Field geometries
- Geographical information
- Client specific information
Data collection and analysis

Data input from hail events

- Probability of hail analyses
- Hail notifications from province managers
- Press release in case of severe damage
- Damage analyses after claims settlement
**Data collection and analysis**

**Hail damage assessment application**

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**Hagel am 2018-08-07 um 19:00 Uhr**

<table>
<thead>
<tr>
<th>Gemeinde</th>
<th>Betroffene Flächen</th>
<th>Durchversicherung:</th>
<th>versicherte Flächen:</th>
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</thead>
<tbody>
<tr>
<td>Bruck an der Mur</td>
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<tr>
<td>Leoben</td>
<td>1463 ha Ackerfläche</td>
<td>82 % Ackerfläche</td>
<td>1200 ha Ackerfläche</td>
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<tr>
<td>Niklasdorf</td>
<td></td>
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<tr>
<td>Trofaiach</td>
<td>5357 ha Grünland</td>
<td>26 % Grünland</td>
<td>1500 ha Grünland</td>
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<tr>
<td>St. Peter-Freienstein</td>
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<tr>
<td>Proleb</td>
<td>39 ha Gartenbau</td>
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<tr>
<td>Fohnsdorf</td>
<td>120 ha Obst</td>
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<td>Semriach</td>
<td>44 ha Wein</td>
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<td>Eggersdorf bei Graz</td>
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<tr>
<td>Weinitzen</td>
<td>7025 ha Gesamt</td>
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</tbody>
</table>

**Gesamtschaden:** 1.600.000 EUR (394 Landwirte)

**Durchversicherung:** 70%

**versicherte Schadenssumme:** 1.100.000 Euro (276 Polizzen)
Data collection and analysis

Claims settlement

- On site claims settlement by 360 freelance loss adjusters in all markets
- Use of orthophotographic to find the right fields
- Specially developed program for claims settlement on outdoor tablets
- Compensations based on loss ratio
Data analysis output

Damage analysis after hail event

Days with hail
- Ø 51 days in Austria in the past 20 years

Hail claims notifications
- 9,258 notifications in Austria
- 1,886 in Branches

Amount of loss
- > 10 mio. € in Austria from “only” five hail events in 2018
From these analyses we have information on time, date, location, frequency and dimension of hail events

- Share information with cooperating institutions
  - “Es hat gehagelt” output to ZAMG for probability of hail evaluation and improvement
  - ministries or reinsurance companies
- Hail risk assessment model
  - Provide input data on international scale → actual data on hail events to verify and advance the model
  - Hail risk classification

Data analysis output
Data application and sharing
Outlook

Future aim

- International cooperation: gather more information
  - Orthophotographics for all our branches
  - Field geometries for all branches
- Use of new data
  - Satellite data to support claims settlement
  - Completely conduct claims settlement
- Risk modelling
  - Better risk assessment