Adapting transport and infrastructure to climate change and extreme weather events
Transport Infrastructure in Germany

51.866 km Highways*
39.500 Bridges

*Federal Highways

~33.400 km Railroads
25.000 Bridges

23.000 km² Seaway
7.300 km
Inland Waterways
Challenges for mobility and traffic in the 21st century:

- Climate change and extreme weather events
- Environmentally sound development of traffic and traffic infrastructure
- Energy transition and digitalisation
- Aging infrastructure
- Increasing economic interdependency and steadily growing mobility requirements

A resilient and environmental sound traffic system needs an interdisciplinary and inter-modal approach

The BMVI-Network of Experts is a new format in public authority research (German: Ressortforschung)
Who is involved?

Federal Ministry of Transport and Digital Infrastructure

BMVI Network of Experts
Knowledge Ability Action

an initiative of the

Bundesamt für Güterverkehr
Federal Highway Research Institute

bast
Federal Waterways Engineering and Research Institute

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Federal Railway Authority
Decision-making level

Steering group

Overall coordination
BASf, BAG, BAW, BfG, BSH, DWD, EBA

Scientific task force: BASf

1. phase: 2016 - 2019

Topic 1: Adapting transport and infrastructure to climate change and extreme weather events
Coordination: DWD

DWD, BASf, BAW, BfG, BSH, EBA

Topic 2: Designing environmentally friendly transport and infrastructure
Coordination: BfG

BfG, BAG, BASf, BAW, BSH, DWD, EBA

Topic 3: Increasing the reliability of transport infrastructures
Coordination: BASf

BASf, BAG, BAW, BfG, DWD, EBA

Topic 4: Consistently developing and using digital technologies
Coordination: BASf

BASf, others...

Topic 5: Enhanced development of renewable energy in transport and infrastructure
Coordination: DWD

DWD, others...

1. phase: 2017 - 2020

J. Dogs (DB); M. Forbriger (EBA)
Scenario development (SP-101)

- Coastal focus areas (SP-108)
  - Dr. Hartmut Heinrich, Dr. Sabine Hüttl-Kabus (both BSH)
- Flooding hazards (SP-103)
  - Dr. Monika Rauthe, Christoph Brendel (both DWD)
- Storm hazards (SP-104)
  - Markus Forbriger (EBA)
- Landslides (SP-105)
  - Jens Kirsten (BASt)
- Navigability and water quality (SP-106)
  - Dr. Enno Nilson (BfG)

Risk analysis (SP-102)

- Inland focus area (SP-109)
  - Jan Ork (BASt)
- Storm hazards (SP-104)
  - JCB Prod/panthermedia.net
- Landslides (SP-105)
  - BMVBS
- Navigability and water quality (SP-106)
  - E. Nilson / BfG

Adaptation options (SP-107)

- Flooding hazards (SP-103)
  - M. Krüttgen/panthermedia.net
- Storm hazards (SP-104)
  - E. Wodlek/panthermedia.net
- Landslides (SP-105)
  - JCB Prod/panthermedia.net
Input data

- Infrastructure data (DB AG)
- DEM, DLM, Geology, … (Open-Geodata Germany)
- Meteorological & climate data (DWD)
- Data at local scale level e.g. Vegetation, high resolution DEMs, soils, … (state authorities in Germany)
- Damage data (DB AG, state authorities,…)
- …
Durch extreme Hochwasser gefährdete Abschnitte des Schienennetzes

Flooding hazards

Storm hazards

HotSpots vegetationsbedingte Störungen
Stand: 14.06.2016

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Developing a Landslide Susceptibility Map of the German Railway Infrastructure
**Goal:** Multimodal, GIS-based risk analysis tool with attached Gedatabase

Example: Risk of frost caused damages on motorways in Germany
Josefine Dogs
Ressort Technik & Qualität
DB Umwelt (TU)
Nature conservation, species protection, climate change adaptation and water protection (TUN)

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(english version coming soon)