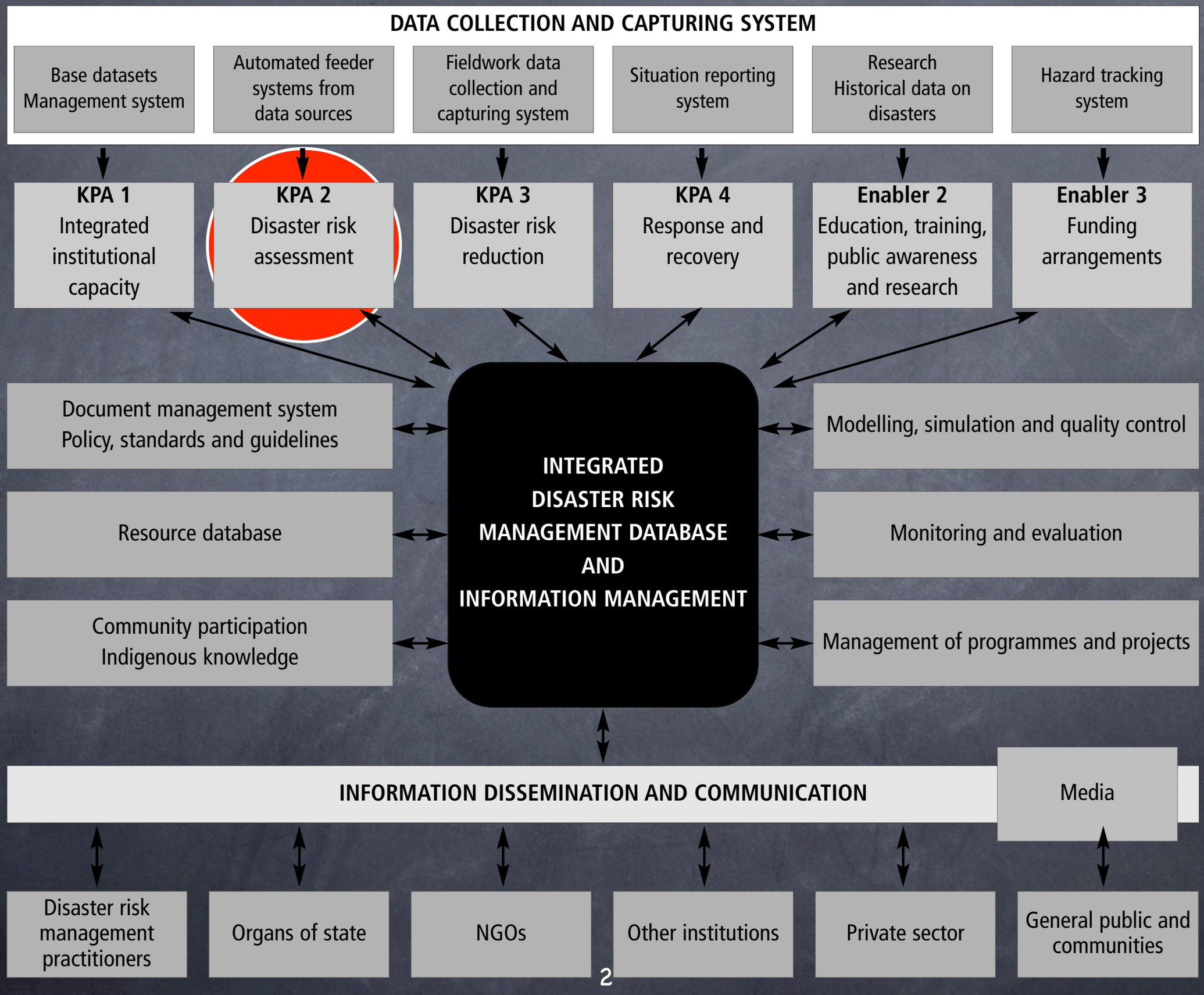
Enabler 1 for the KPA 2 as a component of the Integrated Disaster Risk Management Information System

@ the National Disaster Management Centre

by Dusan SAKULSKI on behalf of Wiseman MKHONZA

Figure 5.1: Model of an integrated information management and communication system for disaster risk management



Enabler 1 for the KPA 2 Disaster Risk Assessment

- Legal requirements:

Enabler 1 for the KPA 2 Disaster Risk Assessment

- Legal requirements:
  - Identify hazards and their potential impacts

Enabler 1 for the KPA 2 Disaster Risk Assessment

- Legal requirements:
  - Identify hazards and their potential impacts
  - Hazards monitoring and tracking for the purpose of early warning

Enabler 1 for the KPA 2 Disaster Risk Assessment

- Legal requirements:
  - Identify hazards and their potential impacts
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  - Hazards, vulnerability and disaster risk assessment, mapping and monitoring

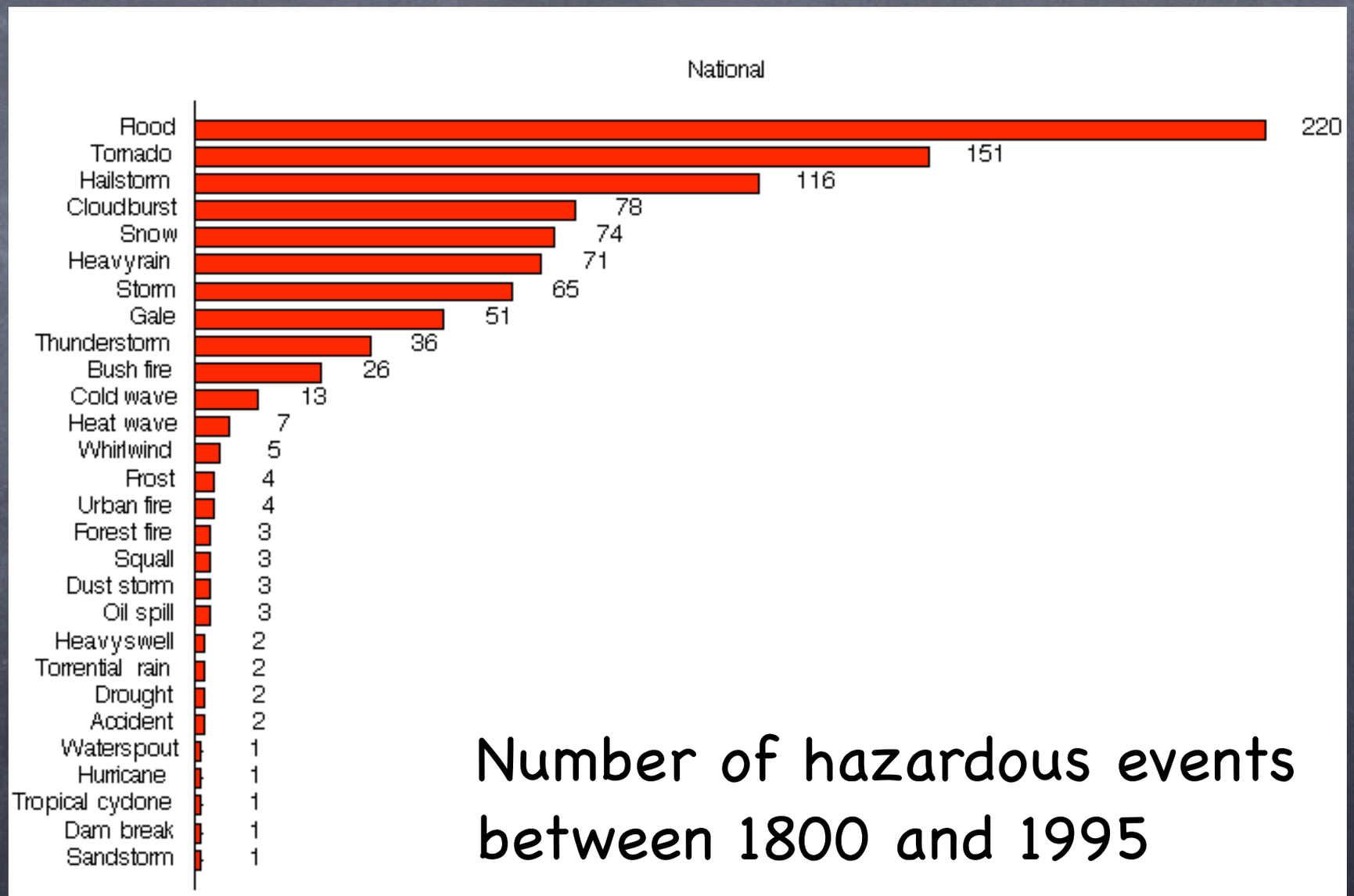
Enabler 1 for the KPA 2 Disaster Risk Assessment

- Legal requirements:
  - Identify hazards and their potential impacts
  - Hazards monitoring and tracking for the purpose of early warning
  - Hazards, vulnerability and disaster risk assessment, mapping and monitoring
  - Modelling and simulations functionality.

Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- Historical hazardous events
  - Frequency.

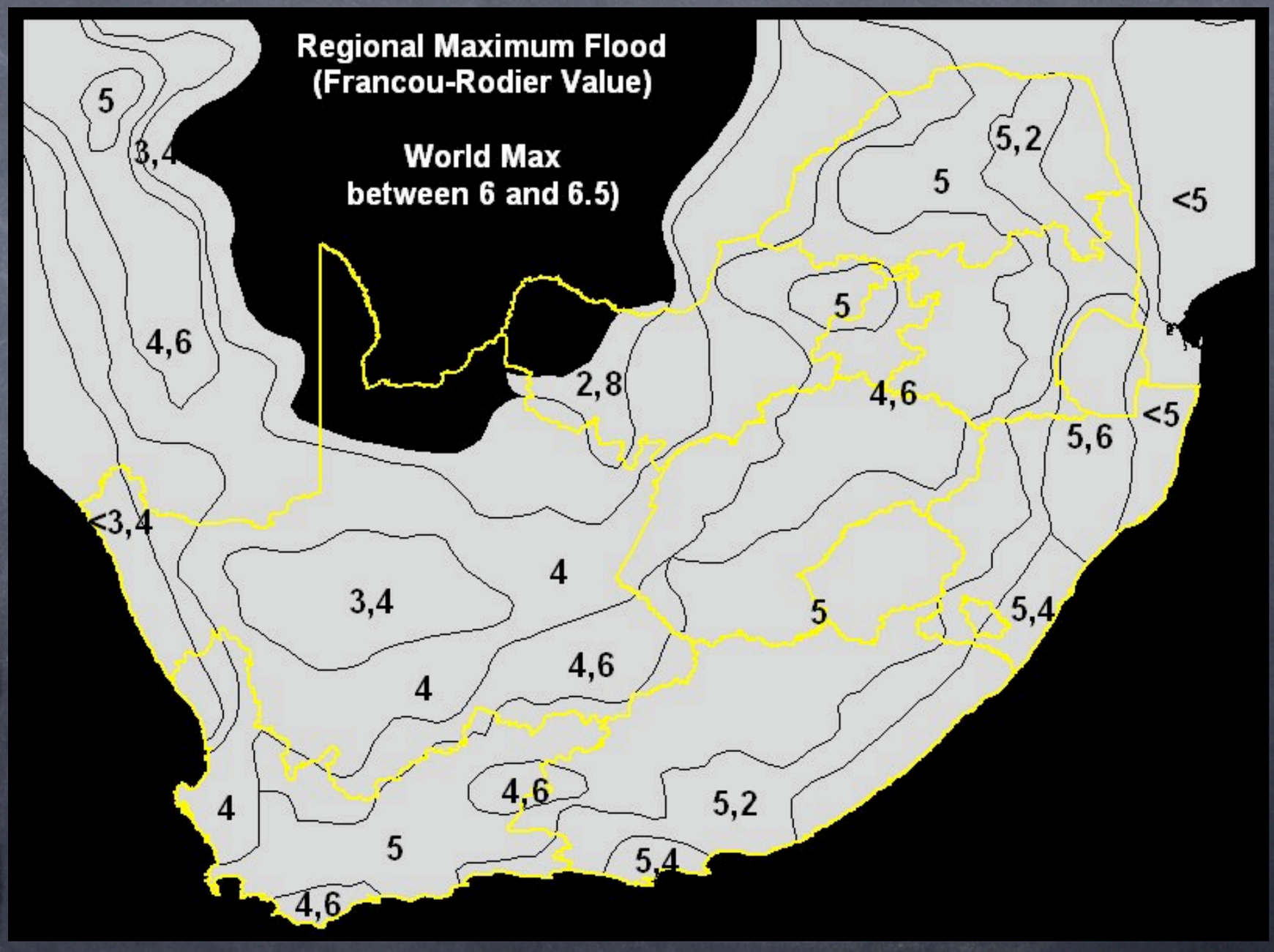


Number of hazardous events between 1800 and 1995

Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- Historical hazardous events
- Magnitude

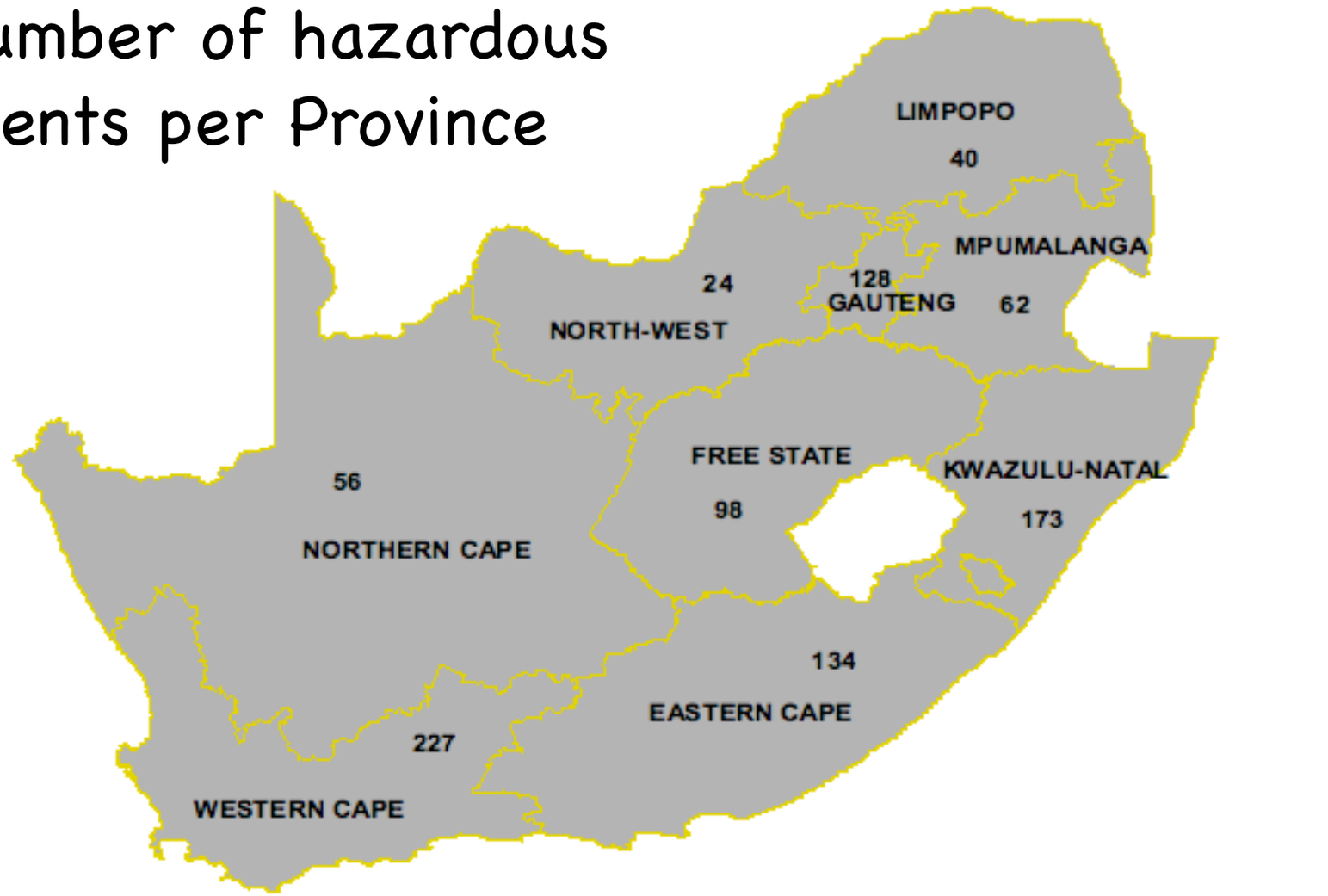


Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- Historical hazardous events
  - Spatial distribution

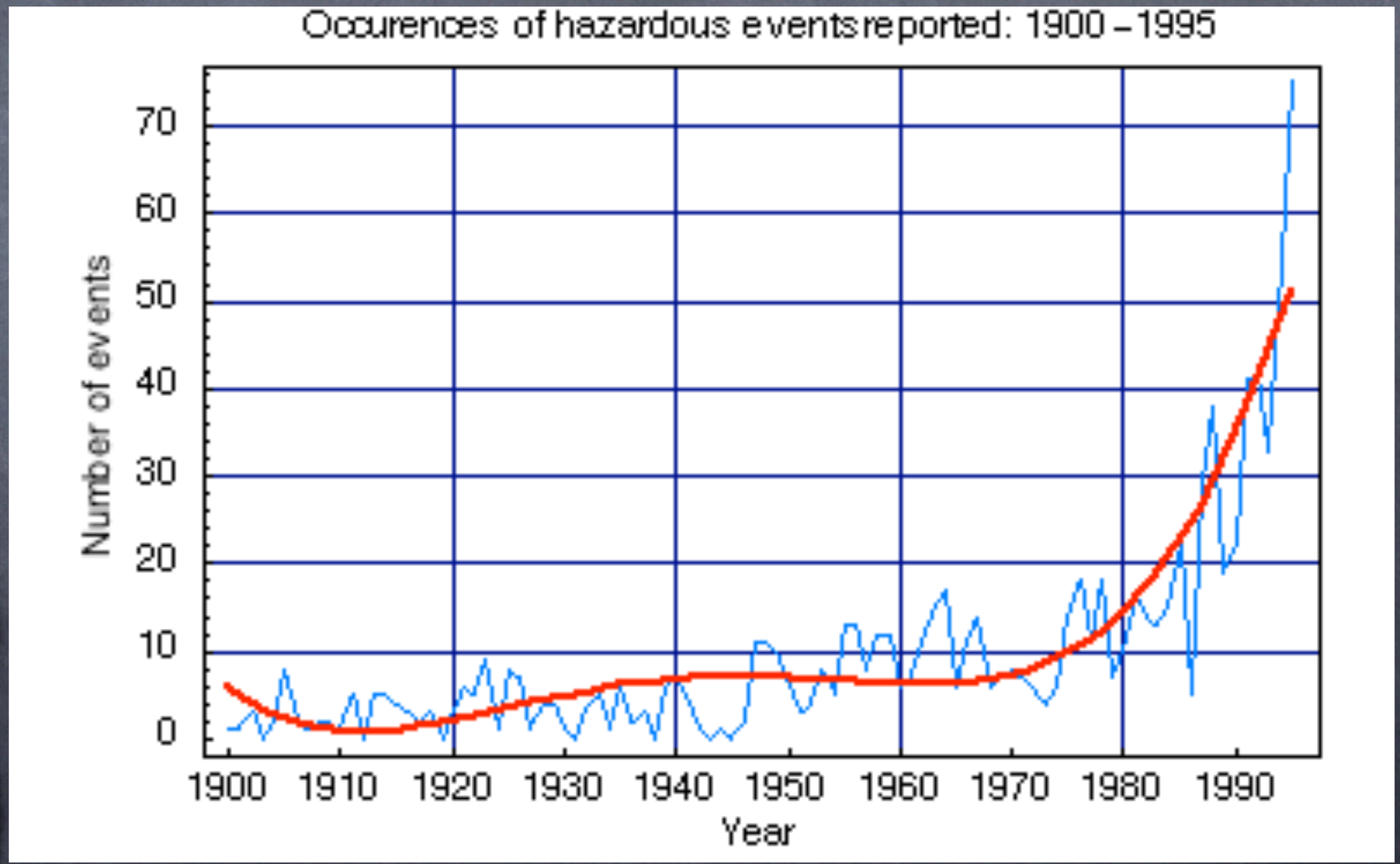
Number of hazardous events per Province



Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- Historical hazardous events
  - Temporal distribution



Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- To do:

Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- To do:
  - Standardise hazardous events attribute data format

Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- To do:
  - Standardise hazardous events attribute data format
  - Select basic spatial data unit

Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- To do:
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  - Select basic spatial data unit
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Enabler 1 for the KPA 2

Identify hazards and their potential impacts

- To do:
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  - Select basic spatial data unit
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Enabler 1 for the KPA 2

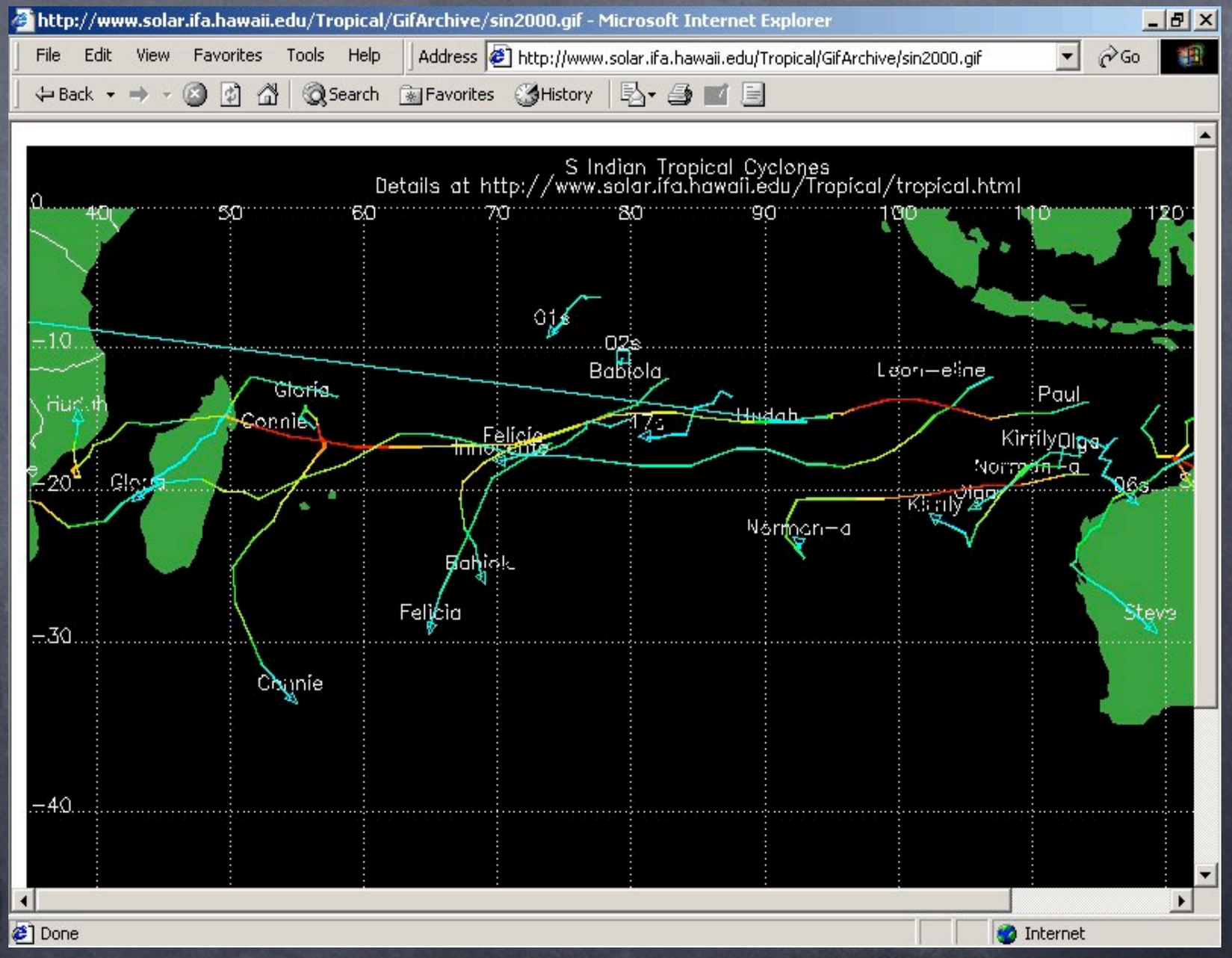
Identify hazards and their potential impacts

- To do:
  - Standardise hazardous events attribute data format
  - Select basic spatial data unit
  - Match existing historical events with selected basic spatial data unit
  - Develop an input form
  - Cover the 1995 - present period.

Enabler 1 for the KPA 2

Hazards monitoring and tracking

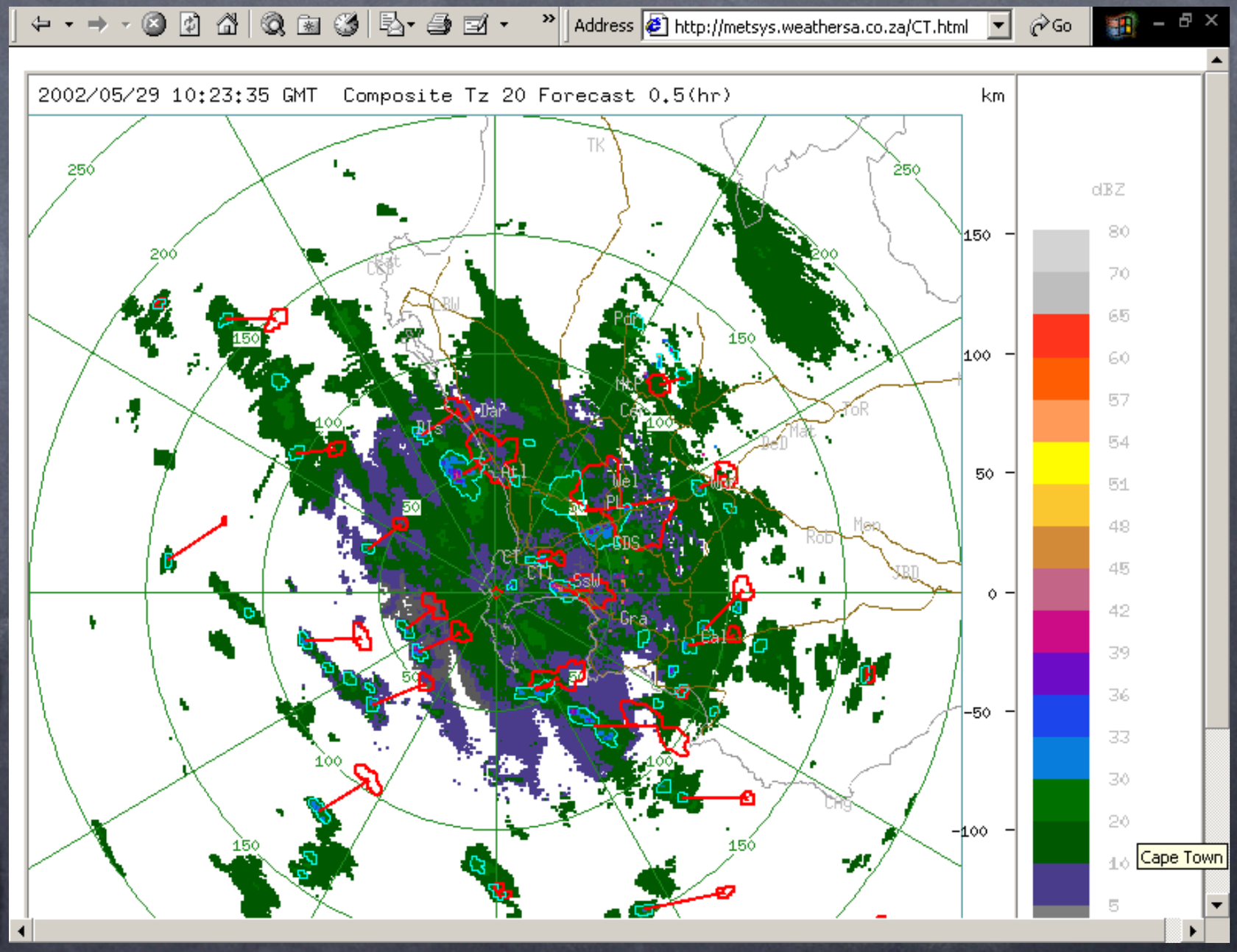
- Tropical cyclones monitoring and tracking



Enabler 1 for the KPA 2

Hazards monitoring and tracking

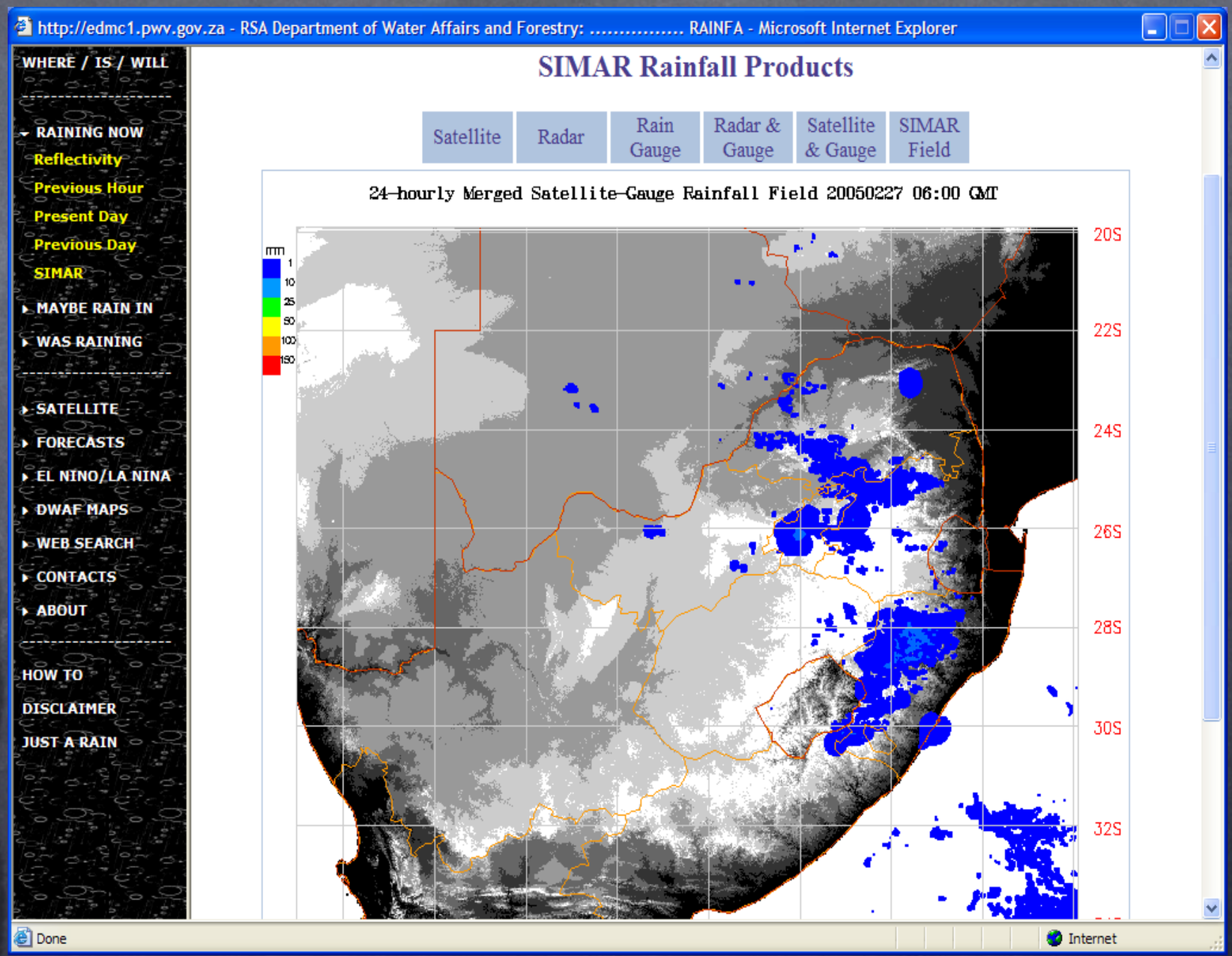
- SAWS close to real time storm and rainfall monitoring and tracking



Enabler 1 for the KPA 2

Hazards monitoring and tracking

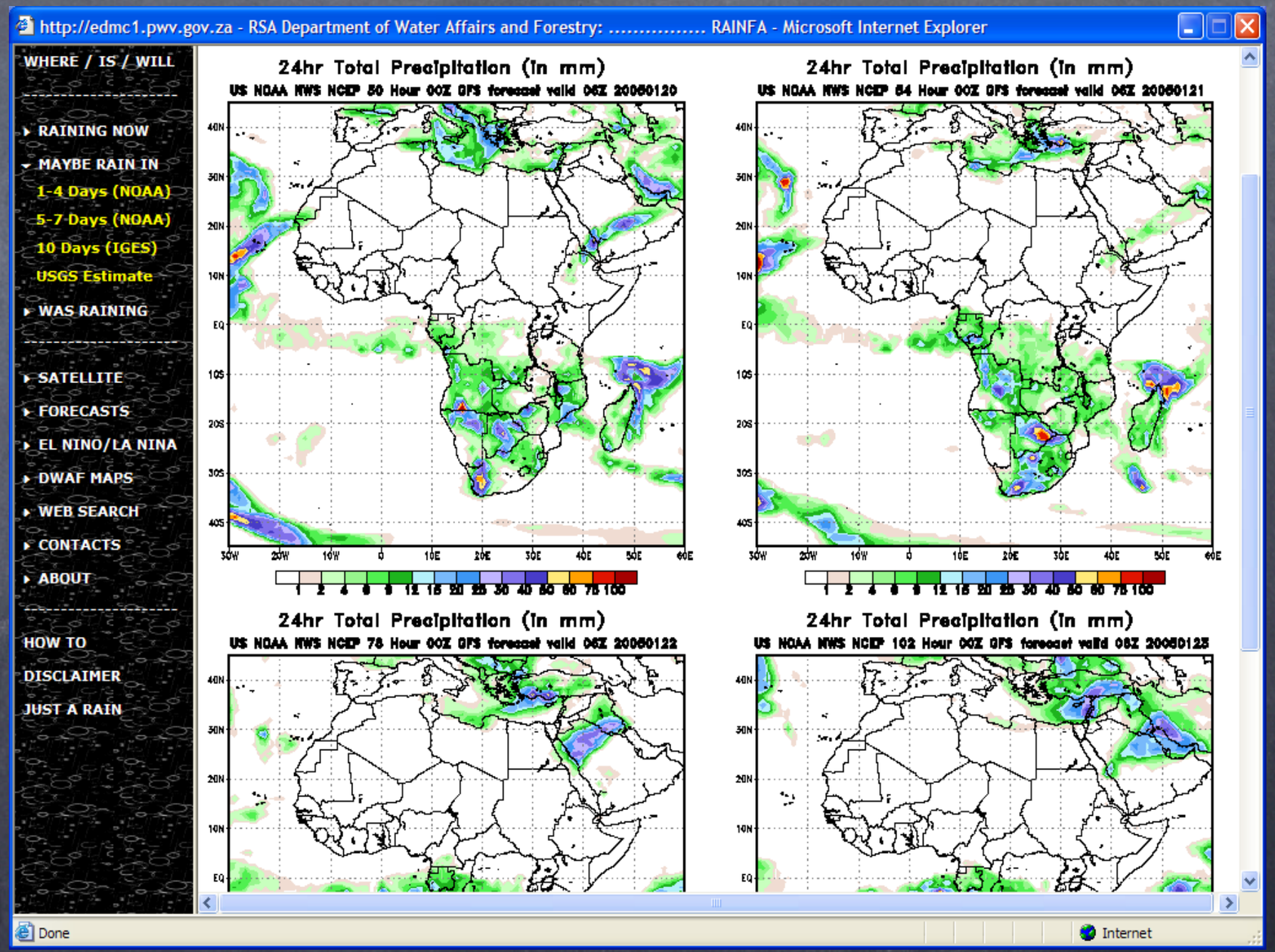
- SAWS accumulated daily rainfall monitoring and tracking



Enabler 1 for the KPA 2

Hazards monitoring and tracking

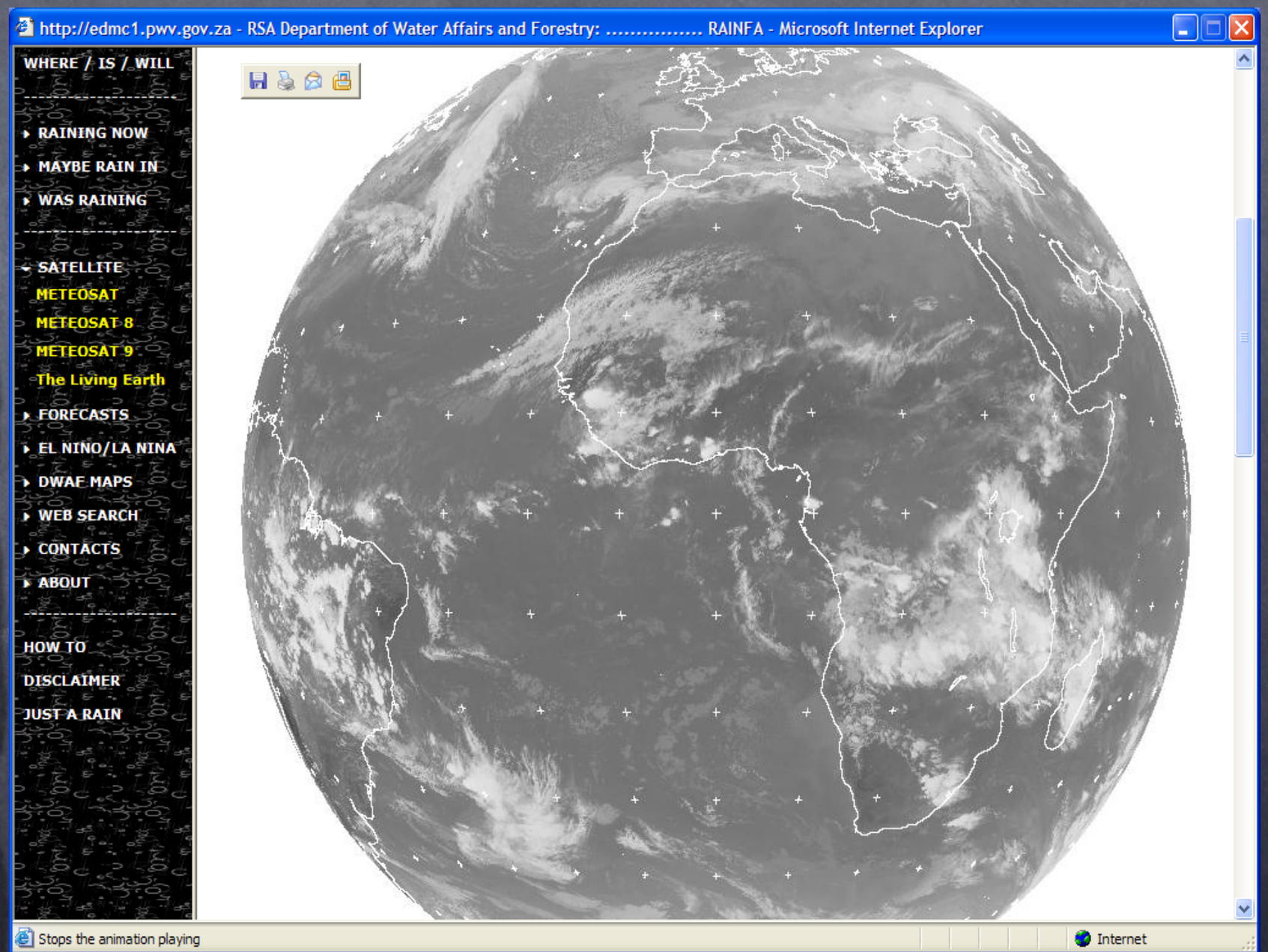
- Satellite-based daily accumulated rainfall estimation for the next 7 days



Enabler 1 for the KPA 2

Hazards monitoring and tracking

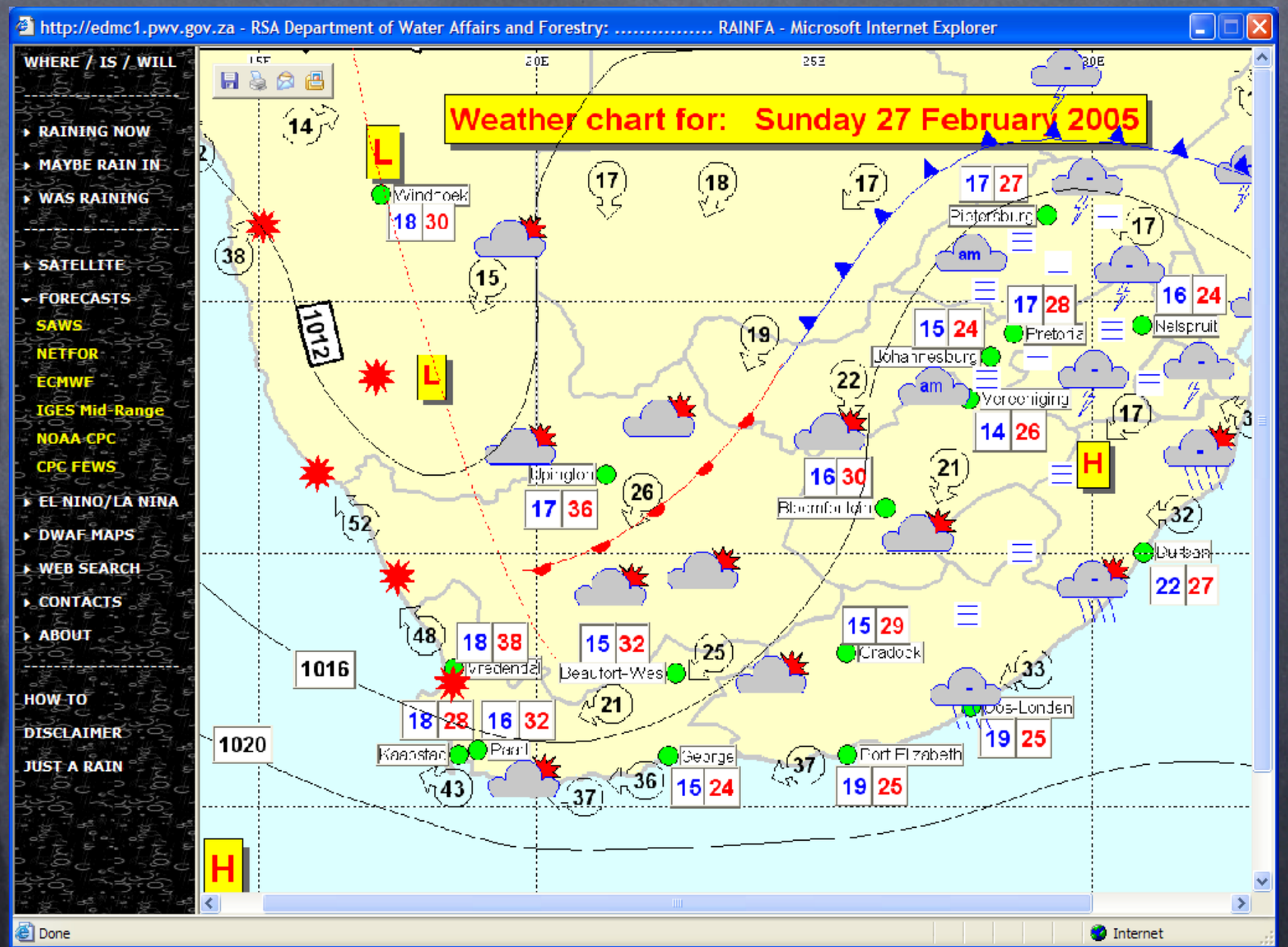
- MSG's cloud cover monitoring and tracking



Enabler 1 for the KPA 2

Hazards monitoring and tracking

- National weather forecast:
  - Wind
  - Rainfall
  - Storm
  - Lightning
  - Frost



Enabler 1 for the KPA 2

Hazards monitoring and tracking

- To do:

Enabler 1 for the KPA 2

Hazards monitoring and tracking

- To do:
  - Prioritise hazards for monitoring and tracking

Enabler 1 for the KPA 2

Hazards monitoring and tracking

- To do:
  - Prioritise hazards for monitoring and tracking
  - Link to the existing sources of hazards monitoring and tracking

Enabler 1 for the KPA 2

Hazards monitoring and tracking

- To do:
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  - Develop an indicators for monitoring and tracking of hazards not yet linked

Enabler 1 for the KPA 2

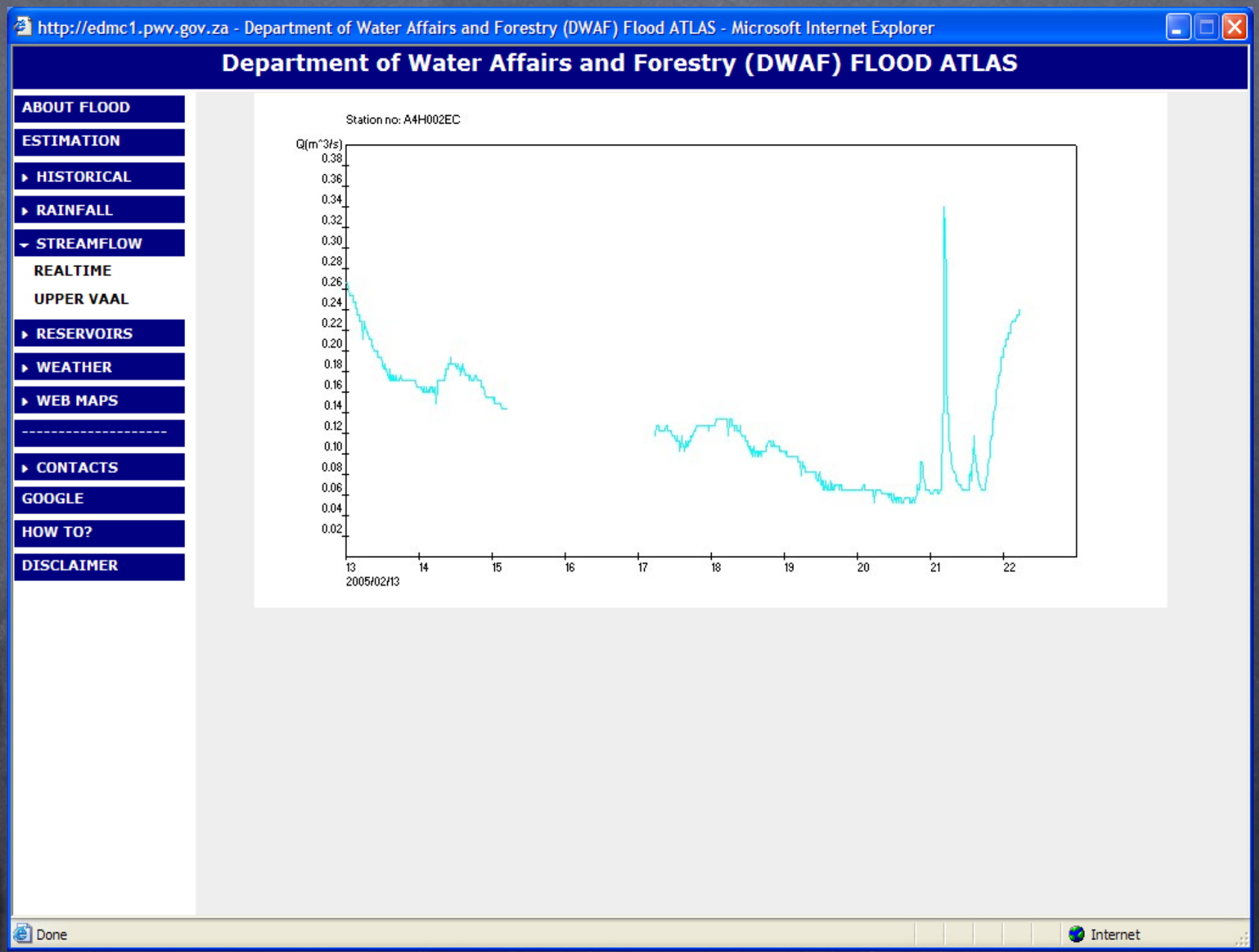
Hazards monitoring and tracking

- To do:
  - Prioritise hazards for monitoring and tracking
  - Link to the existing sources of hazards monitoring and tracking
  - Develop an indicators for monitoring and tracking of hazards not yet linked
  - Maximise hazards monitoring and tracking automation.

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Flood and drought:
  - Major rivers flow



Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Flood and drought:
  - Major dams weekly capacity

http://edmc1.pwv.gov.za - Department of Water Affairs and Forestry (DWAF) Flood ATLAS - Microsoft Internet Explorer

Department of Water Affairs and Forestry (DWAF) FLOOD ATLAS

ABOUT FLOOD
ESTIMATION
▸ HISTORICAL
▸ RAINFALL
▸ STREAMFLOW
▾ RESERVOIRS
WEEKLY
PROVINCIAL
CATCHMENT
LEVEL/PROVINCE
LEVEL/CATCHMENT
▸ ANALYSIS
DAMS INFO
▸ WEATHER
▸ WEB MAPS

▸ CONTACTS
GOOGLE
HOW TO?
DISCLAIMER

State of Dams in Drainage Region A as on 21/02/2005

# Means the Latest Available Data
FSC = Full Storage Capacity in million cubic meters

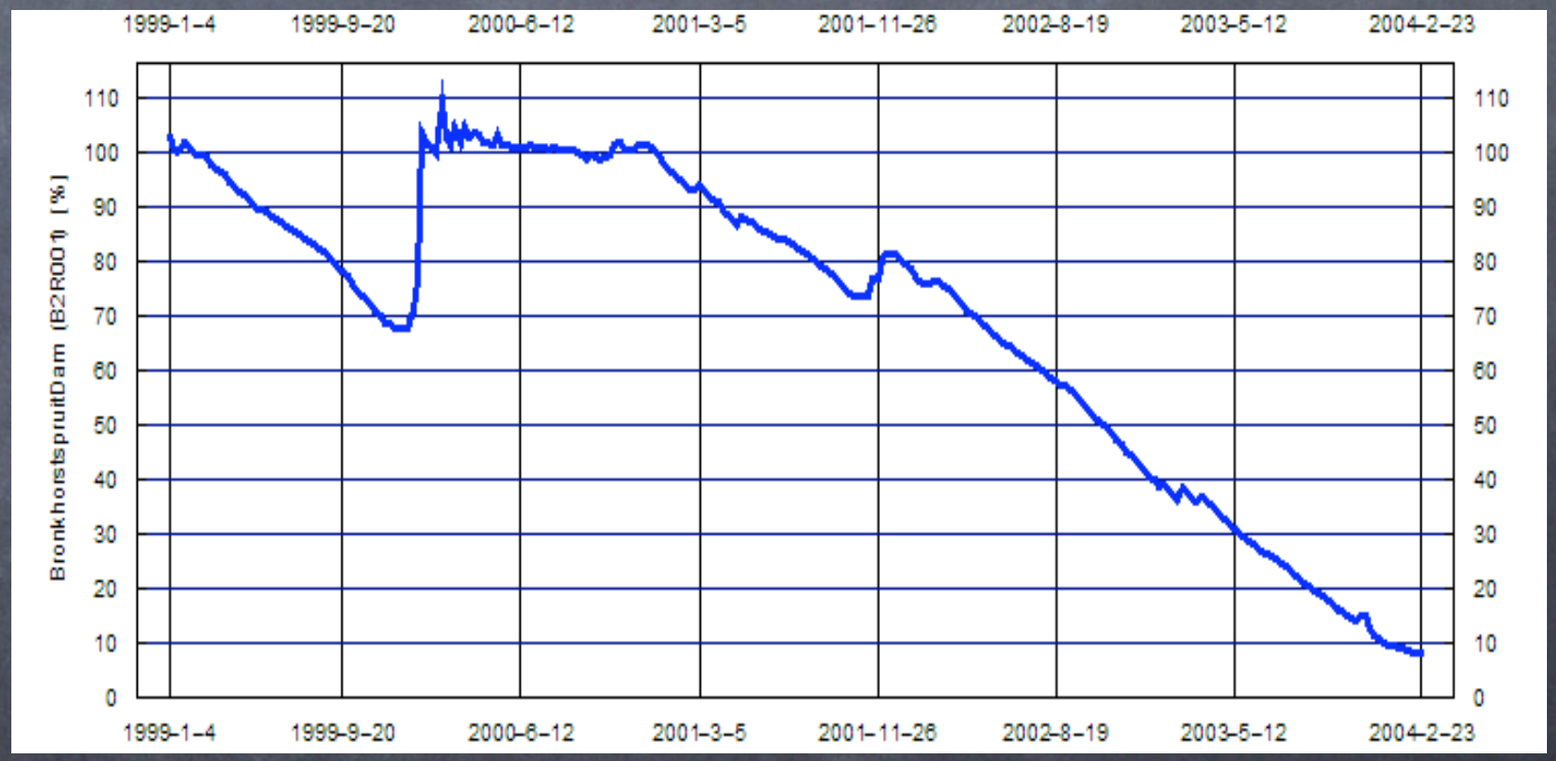
Dam Name	River	Info		FSC	This Week(%)	Last Week(%)	Last Year(%)
Albasini Dam	Luvuvhu River	P	Indicators	28.2	53.4	54.3	43.3
Bospoort Dam	Hex River	P	Indicators	18.2	104.2	103.4	69.1
Buffelspoort Dam	Sterkstroom	P	Indicators	10.3	99.5	98.9	39.1
Doorndraai Dam	Sterk River	P	Indicators	43.8	76.5	77	61.2
Glen Alpine Dam	Mogalakwena River	P	Indicators	18.9	48.9	75.2	51
Hartbeespoort Dam	Krokodil River	P	Indicators	186.4	98.9	97.8	98.1
Klein Maricopoort Dam	Klein Marico River	P	Indicators	7.1	40.8	43.2	50
Klipvoor Dam	Pienaars River	P	Indicators	42.1	91.4	95.4	33
Kosterrivier Dam	Koster River	P	Indicators	12.8	19.6	#21.3	32.6
Kromellenboog Dam	Klein Marico River	P	Indicators	9.0	33.5	33.7	24.7
Lindleyspoort Dam	Elands River	P	Indicators	14.3	67.1	#69.7	43.5
Luphephe Dam	Luphephe River	P	Indicators	14.7	78	78.9	58.9
Marico-Bosveld Dam	Groot-Marico River	P	Indicators	27.0	59.2	60.9	56.3
Mokolo Dam	Mokolo River	P	Indicators	145.4	94.8	91.8	#59.2
Molatedi Dam	Groot-Marico River	P	Indicators	200.8	29.9	#30.8	47.5
Ngotwane Dam	Ngotwane River	P	Indicators	19.2	#12.8	12.8	#18.2
Nwanedzi Dam	Nwanedzi River	P	Indicators	5.3	75.5	76.5	76.4
Nzhelele Dam	Nzhelele River	P	Indicators	51.2	70.5	72	36.4
Olifantsnek Dam	Hex River	P	Indicators	13.6	16.8	16.8	15.1
Roodekopjes Dam	Krokodil River	P	Indicators	102.3	84.6	89.1	18

Done — Internet

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

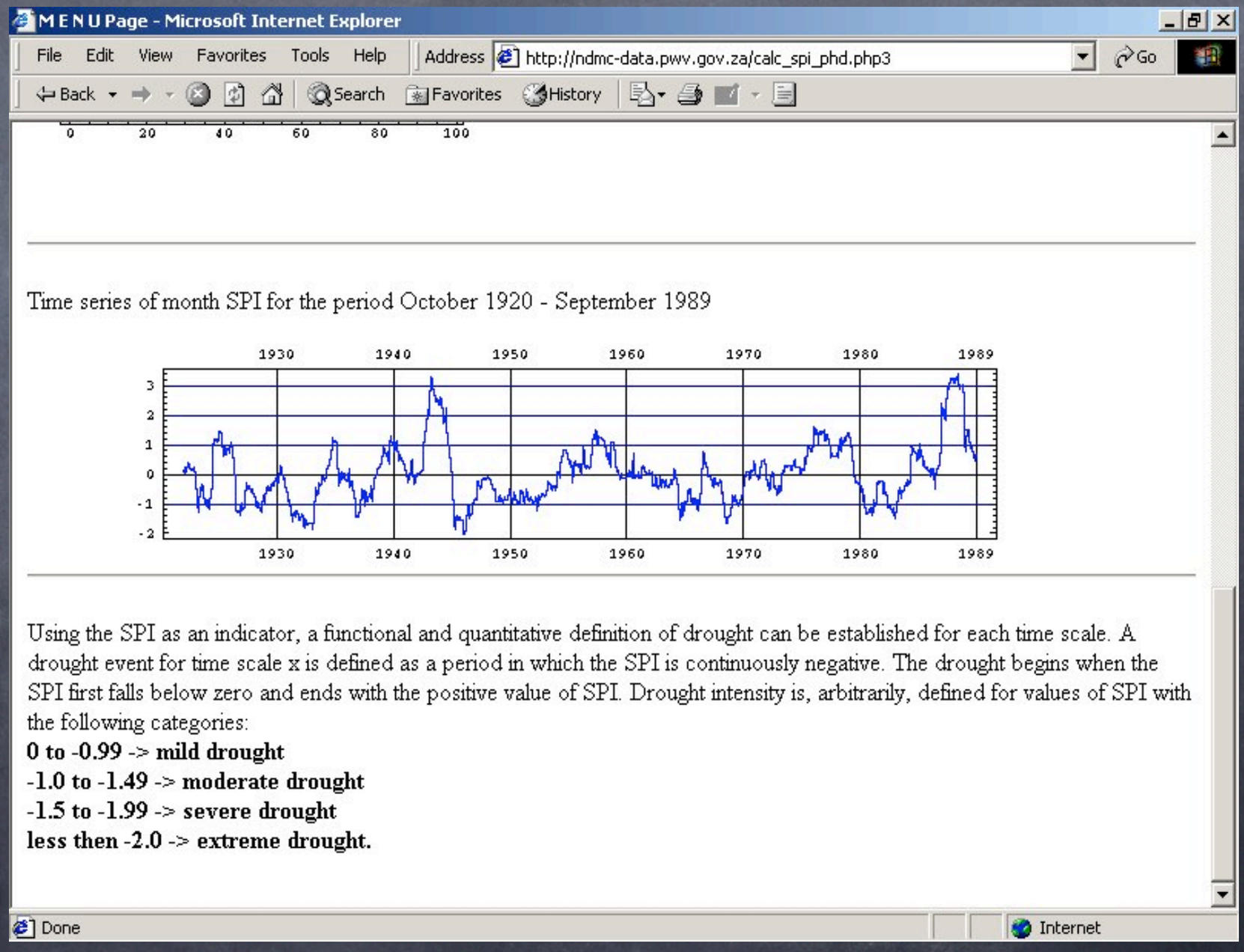
- Flood and drought:
  - Major dams temporal capacity



Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

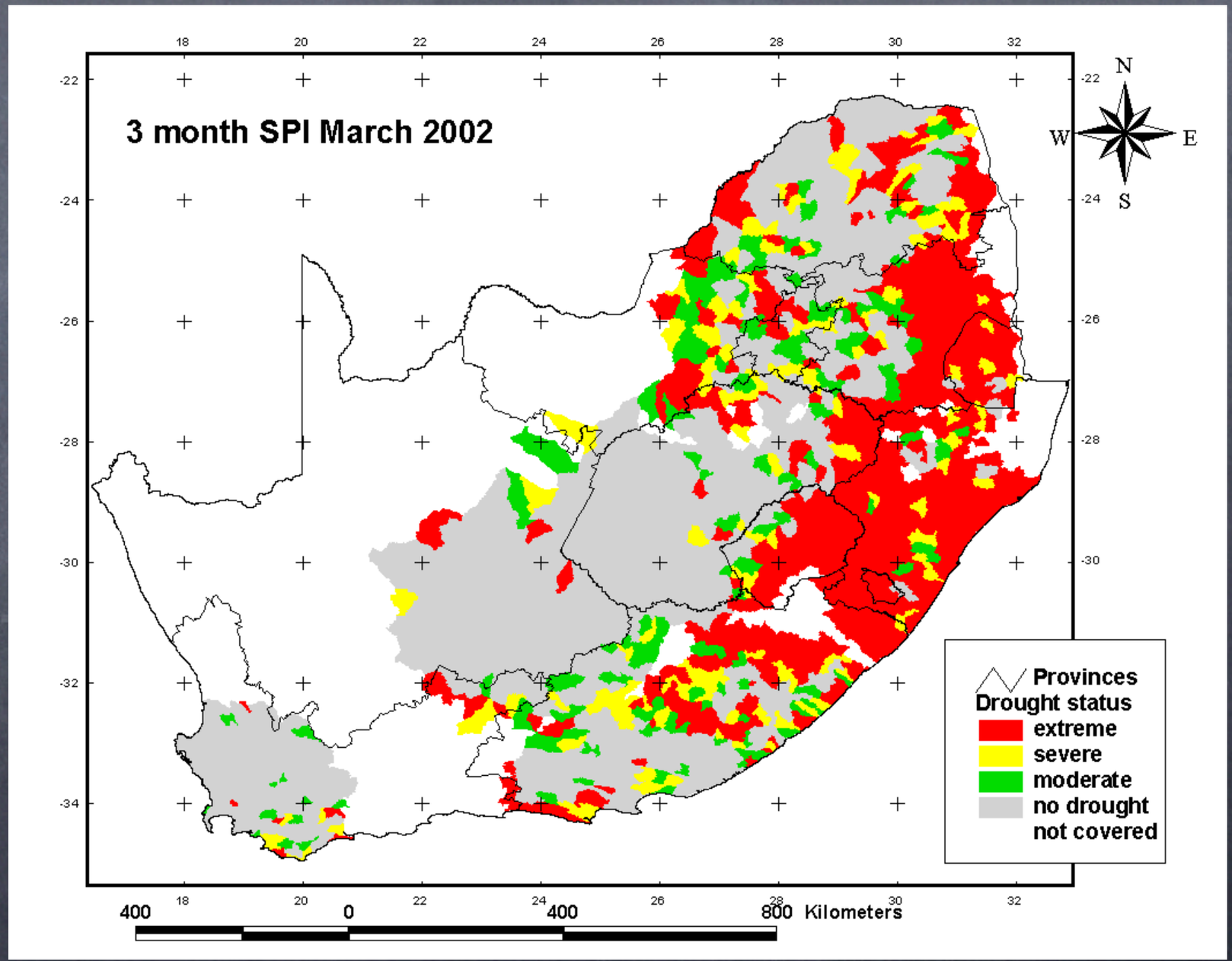
- Drought:
  - SPI as a temporal indicator



Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Drought:
  - SPI as a spatial indicator



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Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Vulnerability to do:

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Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Vulnerability to do:
  - Prioritise vulnerability types in regards to the most frequent hazards

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Vulnerability to do:
  - Prioritise vulnerability types in regards to the most frequent hazards
  - Select the most adequate indices/indicators

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Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Vulnerability to do:
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  - Select the most adequate indices/indicators
  - Assess vulnerability in regards to the most frequent hazards

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Vulnerability to do:
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  - Assess vulnerability in regards to the most frequent hazards
  - Visualise (map) vulnerability

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Vulnerability to do:
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  - Select the most adequate indices/indicators
  - Assess vulnerability in regards to the most frequent hazards
  - Visualise (map) vulnerability
  - Monitor spatial and temporal vulnerability change.

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Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Risk to do:

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Risk to do:
  - Prioritise risk assessment methods in regards to the most frequent hazards

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Risk to do:
  - Prioritise risk assessment methods in regards to the most frequent hazards
  - Assess risk in regards to the most frequent hazards

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

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  - Assess risk in regards to the most frequent hazards
  - Visualise (map) risk

Enabler 1 for the KPA 2

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

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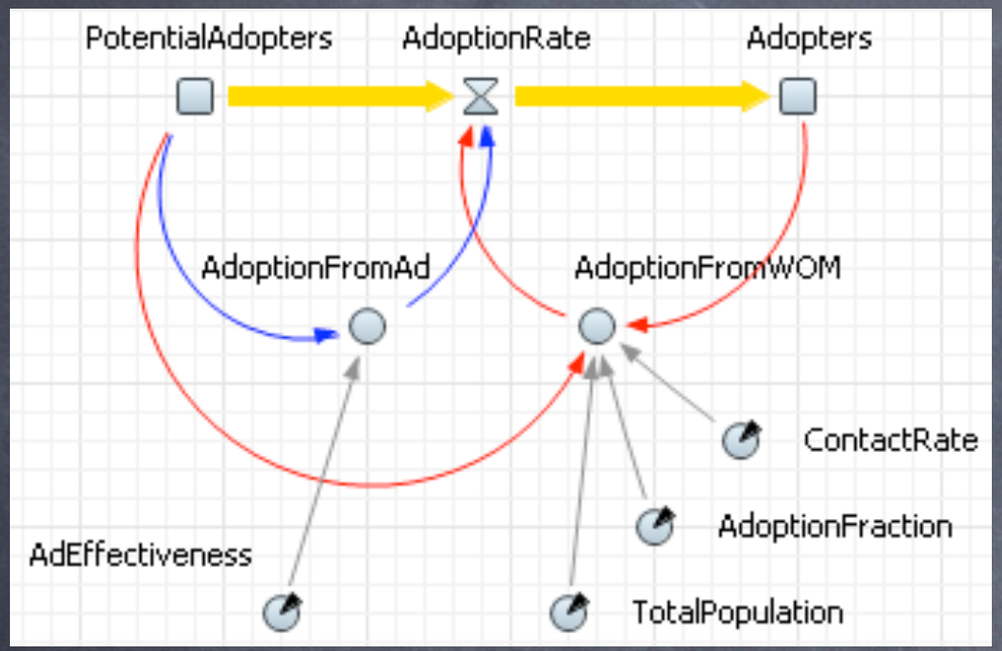
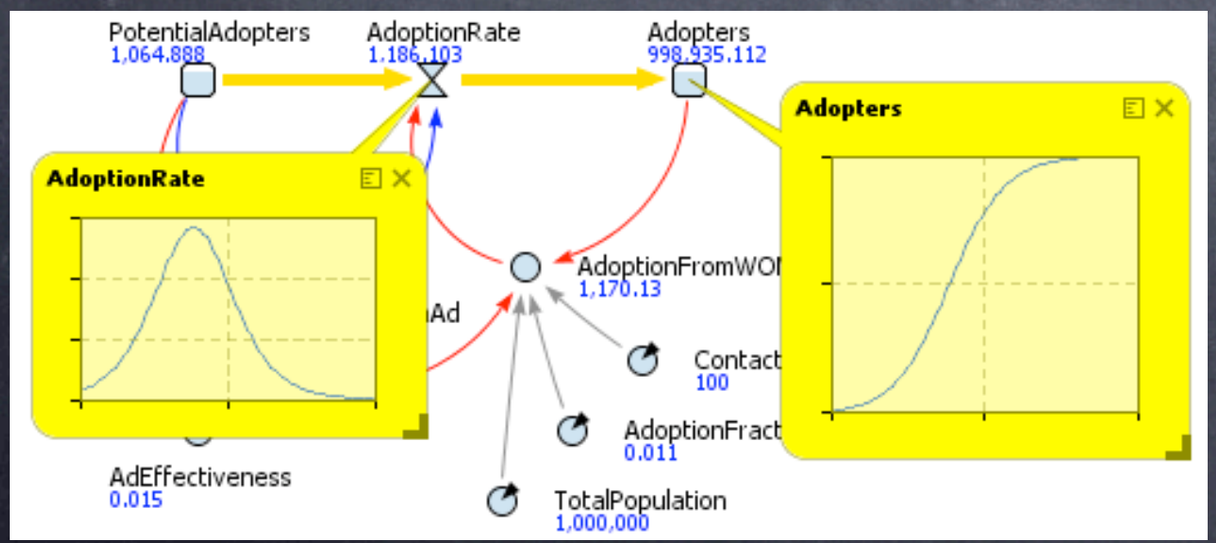
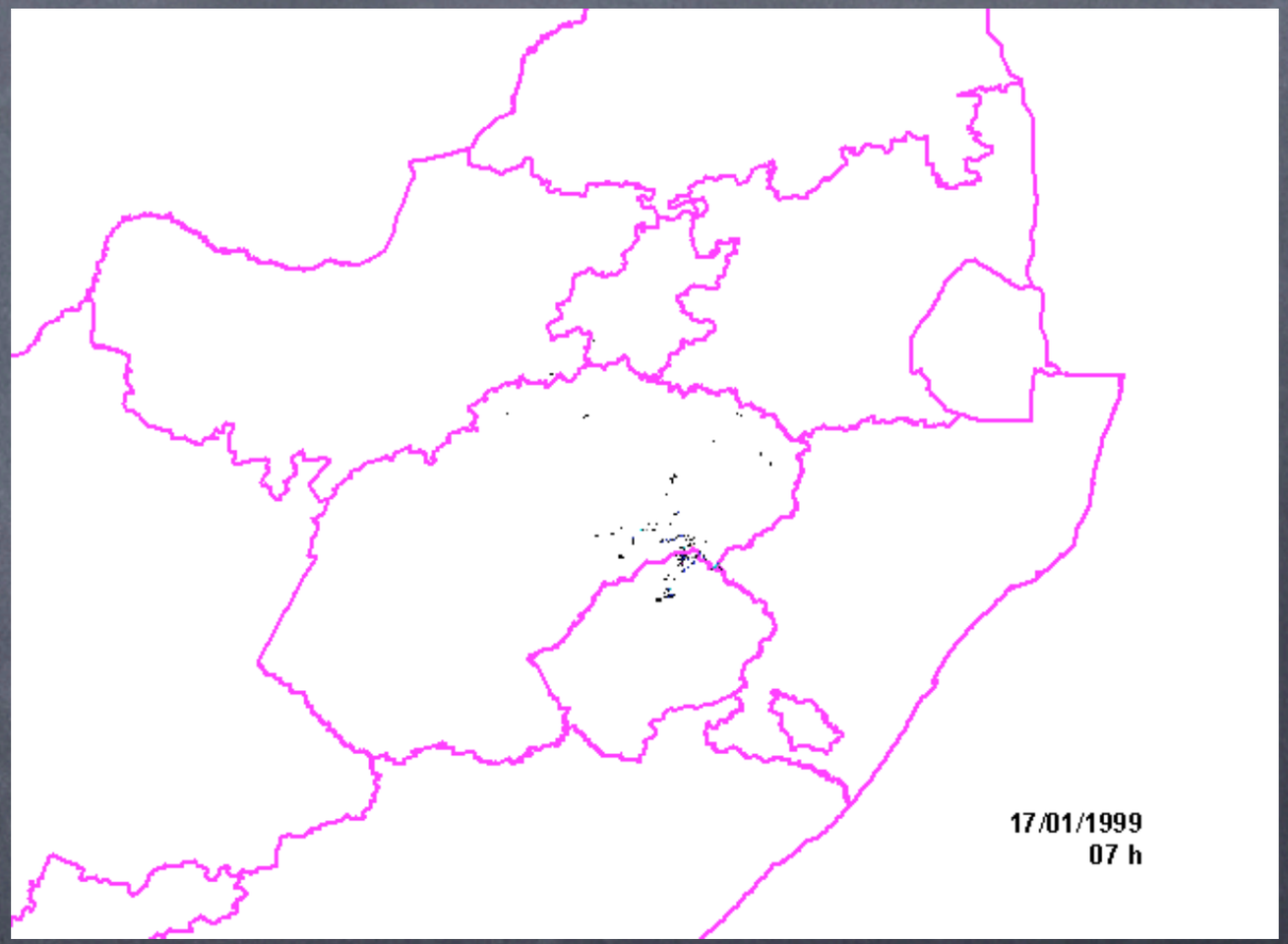
  - Assess risk in regards to the most frequent hazards
  - Visualise (map) risk
  - Monitor spatial and temporal risk change.

Enabler 1 for the KPA 2

Modelling and simulations functionality







Identify hazards and their potential impacts

- Standardise hazardous events attribute data format
- Select basic spatial data unit
- Match existing historical events with selected basic spatial data unit
- Develop an input form
- Cover the 1995 - present period

Hazards monitoring and tracking for the purpose of early warning

- Prioritise hazards for monitoring and tracking
- Link to the existing sources of hazards monitoring and tracking
- Develop an indicators for monitoring and tracking of hazards not yet linked
- Maximise hazards monitoring and tracking automation

Hazards, vulnerability and disaster risk assessment, mapping and monitoring

- Vulnerability to do:
- Prioritise vulnerability types in regards to the most frequent hazards
- Select the most adequate vulnerability models, methods and indices/indicators
- Assess vulnerability in regards to the most frequent hazards
- Visualise (map) vulnerability
- Monitor spatial and temporal vulnerability change

- Risk to do:
- Prioritise risk assessment methods in regards to the most frequent hazards
- Select the most adequate risk models, methods and indices/indicators
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- Visualise (map) risk
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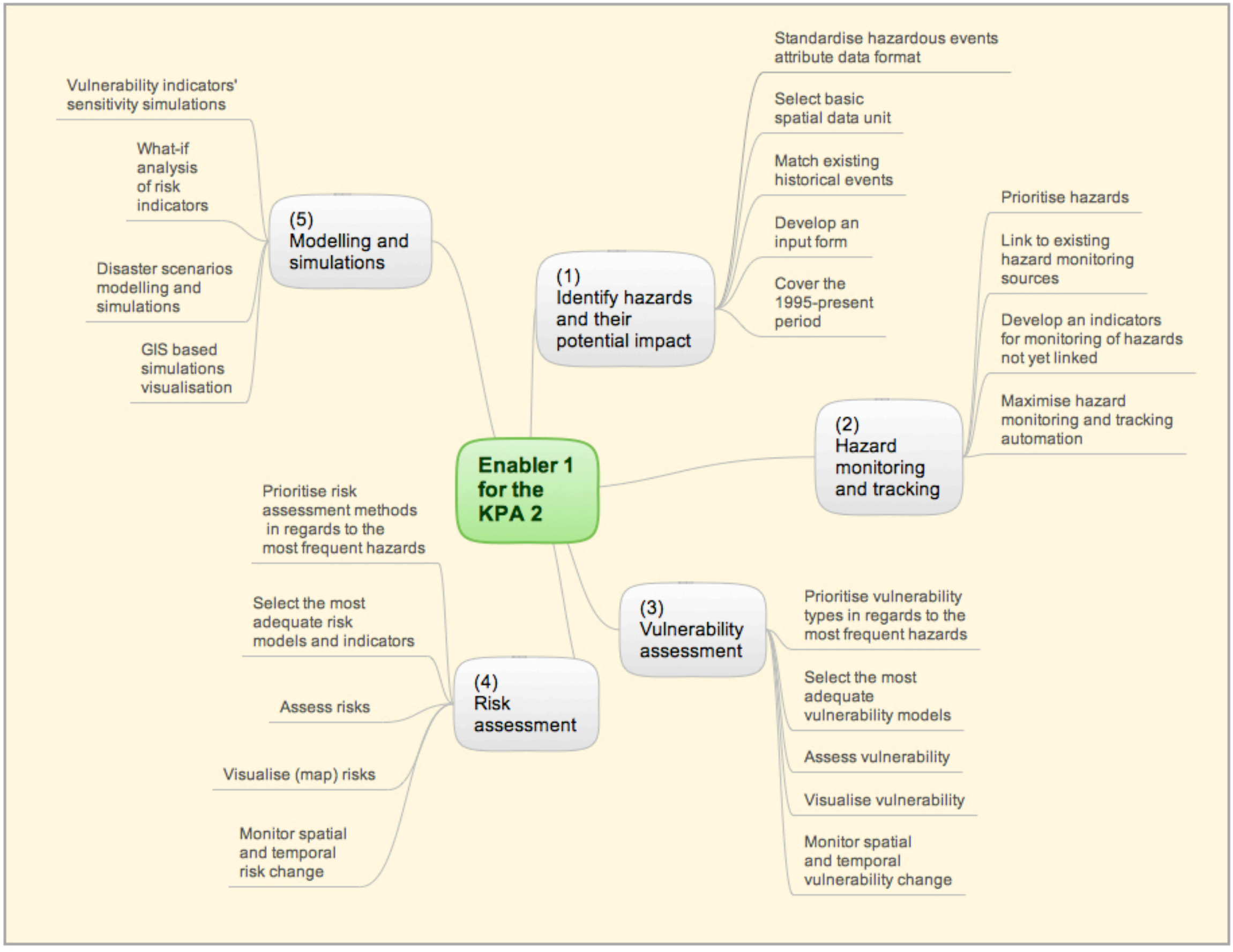
Enabler 1 for the KPA 2
(1) Identify hazards and their potential impact
Standardise hazardous events attribute data format
Select basic spatial data unit
Match existing historical events
Develop an input form
Cover the 1995-present period
(2) Hazard monitoring and tracking
Prioritise hazards
Link to existing hazard monitoring sources
Develop an indicators for monitoring of hazards not yet linked
Maximise hazard monitoring and tracking automation
(3) Vulnerability assessment
Prioritise vulnerability types in regards to the most frequent hazards
Select the most adequate vulnerability models
Assess vulnerability
Visualise vulnerability
Monitor spatial and temporal vulnerability change
(4) Risk assessment
Prioritise risk assessment methods in regards to the most frequent hazards
Select the most adequate risk models and indicators
Assess risks
Visualise (map) risks
Monitor spatial and temporal risk change
(5) Modelling and simulations
Vulnerability indicators' sensitivity simulations
What-if analysis of risk indicators
Disaster scenarios modelling and simulations
GIS based simulations visualisation