A part of BMT in Energy and Environment

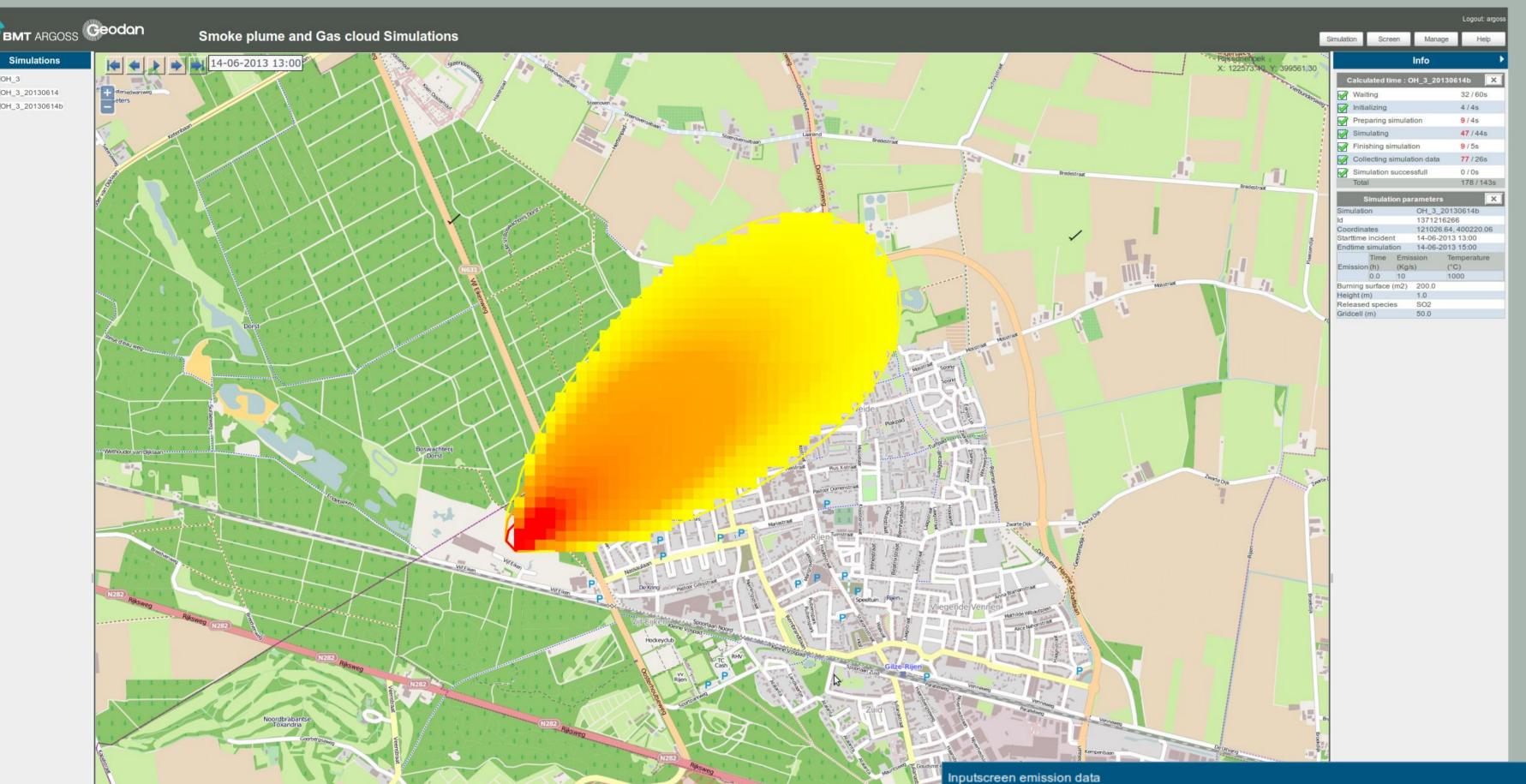


Smoke plume and gas cloud simulations with WRF and CalPuff

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BMT ARGOSS has developed a smoke plume and gas cloud simulation service for emergency services. In this service we

have coupled WRF with the CalPuff model. The goal is to provide real-time information and forecasts to emergency services during incidents with potentially dangerous chemicals.



Client 6 Regional fire departments in the Netherlands

Project 2011-2013

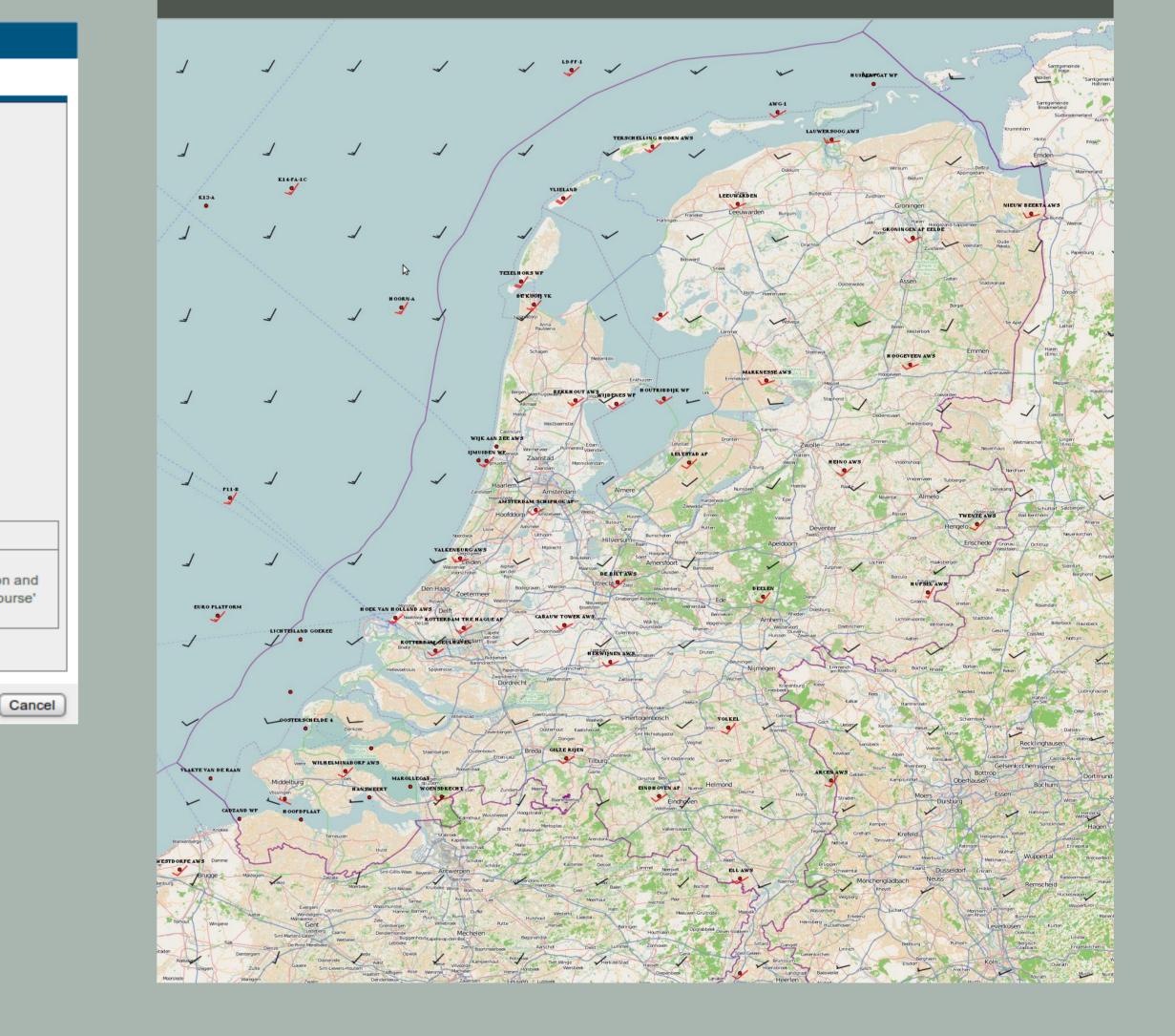
Services & Expertise Provided

- Operational smoke plume forecasting over the Netherlands
- Operational support
- User interface development (Web and GIS)
- Crisis management system
- Validation

	Base Time course	\$		
	Simulation	Suse history input da	ta	
		1371216266 - OH_3_	20130614b	*
stand Broekstraat Broekstraat		OH_3_20130614b		
Apestral Molenschot Brow	Starttime incident	14-06-2013 13:00		
	Endtime simulation	14-06-2013 15:00		
	Location	Coordinates		0220.06
Visgung SI		Zipcode + housenr		
	Height (m)	1		
Lindonk	Emissiontype	Fire 🌲		
AGW=5.0 (mg/m3)	Burning surface (m2)	200		
	Released species	Sulphur dioxide, 1079	•	
			Constant	Ovariable
	Emission	Temperature (°C)		Choose a variable emiss
		Emission (Kg/s)	10	temperature at tab 'Time
	Gridcell (m)	50 🛟		
			Valie	date Start Reset

Features:

- 3 km resolution (WRF), 50 m resolution (Calpuff)
- Forecasts up to 24 hours
- Vertical transport and heat sources included
- 9 most common chemical species
- Fires, gas leaks and liquid evaporation
- Weather forecasts and observations shown on map



The service has received excellent feedback and is currently ready for market introduction. Target markets are national and international fire brigades, the chemical industry and the oil and gas market.

Two user interfaces were developed: a web service and integration with a full crisis management system (GIS-based). Data exchange is facilitated by the use of open web mapping standards WMS, WFS and WCS.

