

Rain Radar Accumulation Tool in the Netherlands

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Introduction

Measuring total precipitation has always been a challenge. Different techniques and developments of how to correctly measure rainfall have been used in the past, and a network of precipitation gauges is present and scattered over the Netherlands. Those measurements give valuable insights into the cumulative rain over a certain period of time. The drawback of this measuring method is that data is coming in with a delay and the coverage is some way less than 100%.

But what if there is a chemical or nuclear incident producing a cloud of dangerous/poisonous particles and decisions need to be made quickly? Rainfall is the primary mechanism by which both chemical and nuclear particles in the atmosphere may deposit on the surface where in turn they can pose a risk for the people on the ground.

RIVM, the primary institute monitoring air quality and related chemical/nuclear incidents in the Netherlands is working in cooperation with KNMI to assess where precipitation was/is falling during a chemical/nuclear event and determine which areas have/are been/being affected. This information in combination with model forecasts of both the plume of the spreading chemical/nuclear cloud and the expected rainfall by weather models is used to take adequate measures to protect the public.

Radar data

Because of the limitations of the rain-gauge network, an alternative means of determining deposition hotspots has to be found. Fingers will point to the radar immediately as the coverage problem is (virtually) being eliminated and the sampling frequency is small (5 minutes). Of course the use of radar data is not spotless either, and there are some drawbacks. Because of the scan-strategy of the radar and the pseudo-Cappi imagery used, the measurements on radar are an estimate of the rainfall-rate but are not always entirely correct. Therefore precipitation sums over the entire region that is covered by the radar are normally corrected with observations.

During an event decisions need to be made quickly; there is no time for corrections as it will take time to get the data from the rain-gauge network, and preference goes to automatically generated output of threatened areas. Therefore the unadjusted radar data is being used to determine where the hotspots of rainfall can be identified during the period of exposure by a chemical/nuclear cloud and simultaneous rainfall measured by radar.

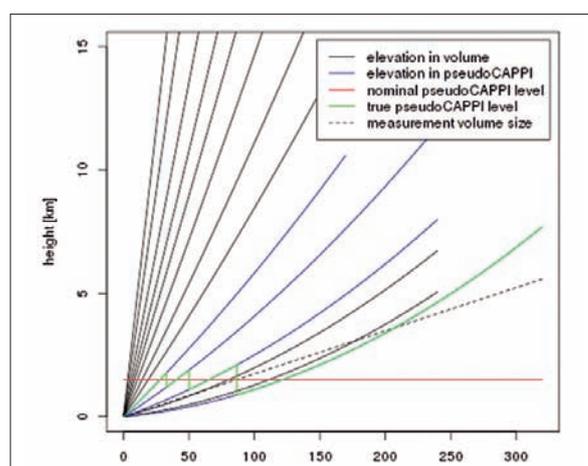
The KNMI-radar outputs standard HDF5-files, which are the source of data for the tool explained below.

Operational use

A tool has been developed to create a cumulative precipitation image within the area of radar coverage. Meteorologists can select the time-interval between which the radar imagery is being accumulated. This results in an image with hotspots of rainfall which can be matched with the model output of the plume of the chemical/nuclear incident.

On top of this the output is generated both as an image, as well as an ASCII file which can be used for further processing within other models or displays.

This simple yet very effective tool, gives quick insights into defining hotspots of rainfall within a certain time window and can be used swiftly when questions are being asked on this subject.



Bereken cumulatieve neerslag - experimenteel - Rutger Boonstra - Mozilla Firefox

gestand Beveiken Beeld Geschiedenis Bldwijzers Extra Help

bhw321.inrmi.nl/~boonstra/neeslag/index.php?img=201308190000_201308191630.png

Bereken cumulatieve Neerslag

Begin: 2013/09/17 05:00 Einde: 2013/09/17 12:00 [Klik hier voor aanmaken figuur!](#)

20130819 00:00 - 20130819 16:30

magery: 201308190000 - 201308191630

September 2013

Time 05:00
Hour
Minute

Now Done

Onlangs aangemaakte files

201308101200_201309102300.png
Sep 10 2013 22:33:18 UTC-ASCII
201308101500_201309102000.png
Sep 10 2013 20:15:14 UTC-ASCII
201308071600_201309101600.png
Sep 10 2013 16:43:30 UTC-ASCII
201308060000_201309101600.png
Sep 10 2013 16:13:07 UTC-ASCII
201309100500_201309101200.png
Sep 10 2013 11:24:06 UTC-ASCII
201308090000_201309092130.png
Sep 09 2013 19:33:07 UTC-ASCII
201308090000_201309092115.png
Sep 09 2013 19:30:30 UTC-ASCII
201308180000_201308190000.png
Aug 19 2013 14:44:27 UTC-ASCII
201308190000_201308191630.png
Aug 19 2013 14:40:03 UTC-ASCII
201308070000_201308071100.png
Aug 07 2013 11:36:48 UTC-ASCII
201307260000_201307262330.png
Jul 26 2013 21:47:11 UTC-ASCII
201307261600_201307262100.png
Jul 26 2013 21:41:50 UTC-ASCII
201307231200_201307241200.png
Jul 24 2013 14:45:26 UTC-ASCII
201306201200_201306211100.png
Jun 21 2013 09:44:56 UTC-ASCII
201306211100_201306211200.png
Jun 21 2013 09:44:02 UTC-ASCII
201306290500_201306292030.png
May 29 2013 20:35:25 UTC-ASCII
201304160000_201304160115.png
Apr 16 2013 13:28:48 UTC-ASCII
201304091300_201304092230.png
Apr 10 2013 14:18:58 UTC-ASCII
201304100000_201304101600.png
Apr 10 2013 14:12:56 UTC-ASCII
201210260500_201210260900.png
Oct 30 2012 10:36:14 UTC-ASCII
201210260500_201210300900.png
Oct 30 2012 10:31:11 UTC-ASCII

Instructies: Bereken de cumulatieve neerslag binnen twee zelfgekozen tijden!

Afhankelijk van tijd tussen de twee gekozen tijden en de drukte op de server kan het aanmaken van de figuur ophopen tot enkele minuten in extreme gevallen.

bhw321.inrmi.nl/~boonstra/neeslag/index.php?img=201308190000_201308191630.png#

Start | Inbax - Microsoft Outlook | Bereken Cumulatieve... | Microsoft PowerPoint - [...]

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