Meteor Event Bulletin — Flensburg, Germany

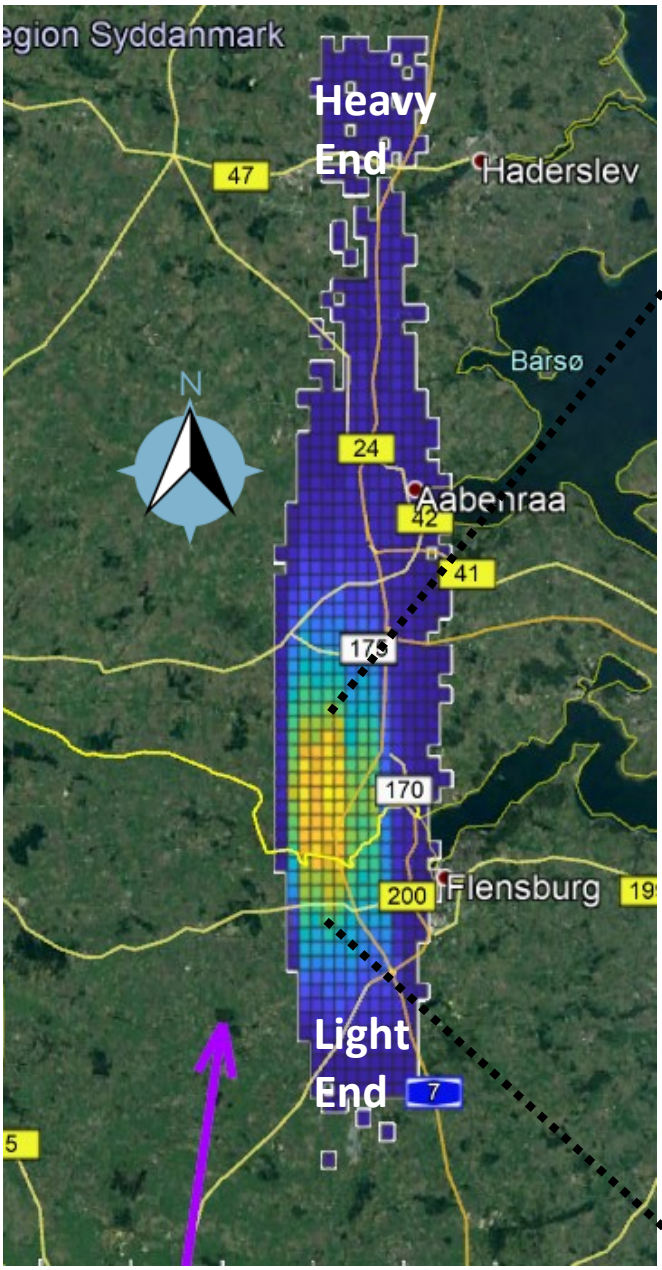
Version 3.0 | September 23, 2019 22:45 UTC

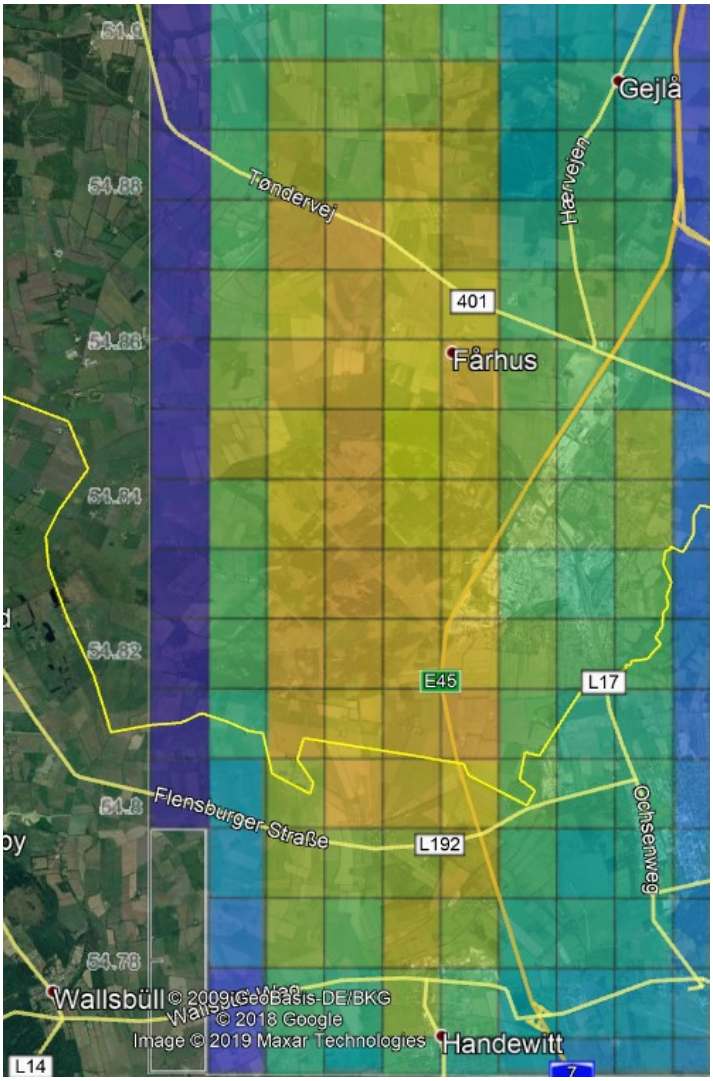
Trajectory Data:

Date/Time UTC	09/12/2019 12:49:48
Local Date/Time (+2.0)	09/12/2019 2:49:48 PM
Reference Location	54.50°N 9.16°E
Reference Altitude	42 km
Estimated Energy/Mass	0.48 kt / 10043 kg
Bearing (Heading)	8.30° North
Incidence Angle	65.46° from vertical
Entry Speed	20.00 km/s

Strewn Field Prediction Data:

Simulation Date/Time UTC	09/23/2019 22:45
Simulation Engineer	Jim Goodall
Trajectory Data Source	CNEOS* Marchal v. Video Holger Scheele Video Jörg Strunk Video Marknesse Video
Weather Data Source	IGRA Weather Balloon Data
Simulation Type	Monte Carlo, Unknown Meteoroid
Simulation Data Count	163 scenarios / 100,198 fragments





Strewn Field Prediction Notes: The colored squares shown on the map indicate the relative probability of meteorite finds, based on the estimated variation in the trajectory, weather data, meteorite density, and fragmentation. The color scale is normalized to this simulation only and not comparable to other simulations.

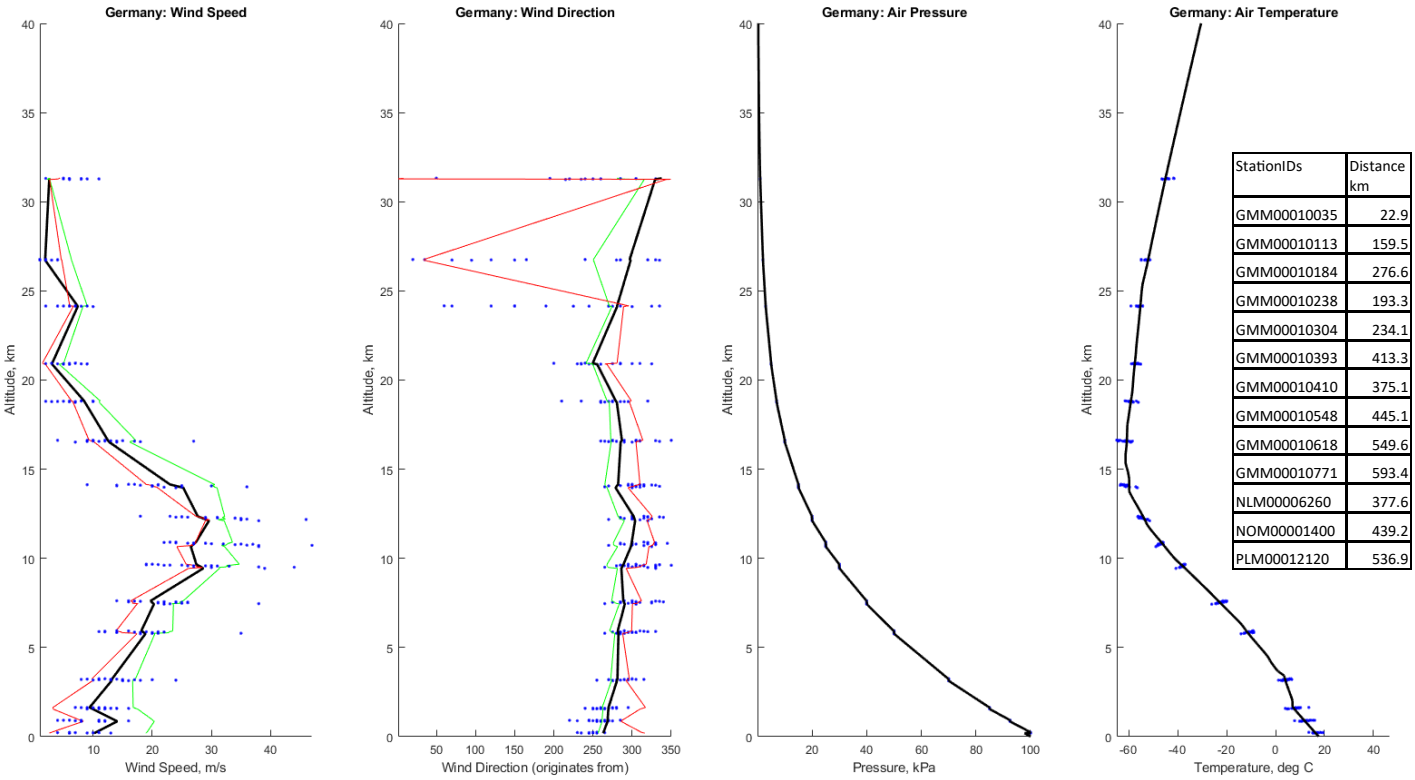
*** CNEOS is a military sensor network with classified specifications and uncertain accuracy.**

Meteor Event Bulletin — Flensburg, Germany

Version 3.0 | September 23, 2019 22:45 UTC

Weather Data Summary:

Windspeed variation included: 1.5σ



StationIDs	Distance km
GMM00010035	22.9
GMM00010113	159.5
GMM00010184	276.6
GMM00010238	193.3
GMM00010304	234.1
GMM00010393	413.3
GMM00010410	375.1
GMM00010548	445.1
GMM00010618	549.6
GMM00010771	593.4
NLM00006260	377.6
NOM00001400	439.2
PLM00012120	536.9

Version Log:

Date	Version	Change Notes	Author(s)
09/15/2019	1	Original version based on CNEOS trajectory and validated against video footage.	Jim Goodall
09/16/2019	1.1	Typo correction, 12kg —> 12000kg, minor formatting changes	Jim Goodall
09/17/2019	2	Strewn field relocated 3 km west, based on video data.. Strewn field filtered to only include fragments larger than 10g.	Jim Goodall
09/21/2019	2.2	Confidence is improved after further video analysis, but it is difficult to improve the precision, due to clouds in the videos. Simulation re-run to include all possible meteoroid types. Print quality improved.	Jim Goodall
09/23/2019	3.0	Confidence is further improved, with the addition of calibrated camera data from Herford, Germany. A small improvement in accuracy and precision were achieved with the new trajectory.	Jim Goodall