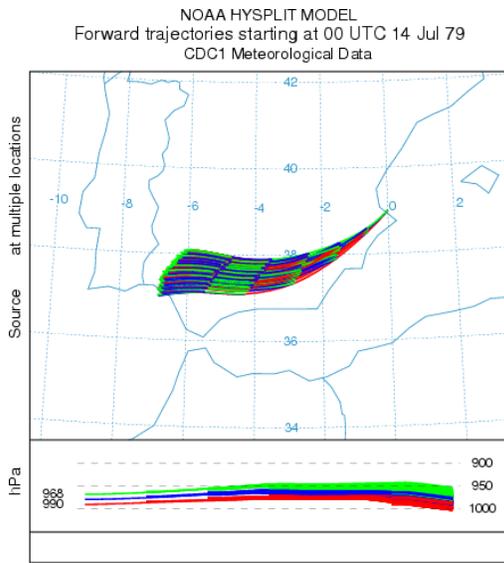
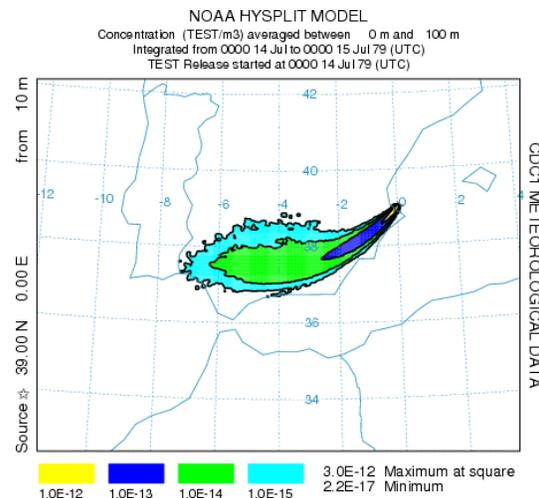


Trajectories versus Concentration Plumes

A “puff” following a single trajectory cannot properly represent the growth of a pollutant cloud when the wind field varies in space and height. In these situations, the single-puff must either split into multiple-puffs or the simulation must be conducted using many pollutant particles. On the left, new trajectories are started every 4-h at 10, 100, and 200 m AGL to represent the boundary layer transport, while on the right, 2500 particles were used to simulate the air concentration plume.



[control](#) & [setup.cfg](#)



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Particle: The element (particle) is a point mass of contaminant. A fixed number of particles are released. They are moved by a wind having mean and random components. They never grow or split.

Puff: The element is a fully 3-D cylindrical puff, having a defined concentration distribution in the vertical and horizontal. Puffs grow horizontally and vertically according to the dispersion rules for puffs, and split if they become too large.

Hybrid: The element is a circular 2-D object (planar mass, having zero vertical depth), in which the horizontal contaminant has a “puff” distribution. There are a fixed number of these in the vertical because they function as particles in that dimension. In the horizontal dimension, they grow according to the dispersion rules for puffs, and split if they get too large.

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