BACKWARD TRAJECTORY
using HYSPLIT

everyday initialisation at 12 UTC, multiple starting altitudes from 0.5 up to 10 km AGL

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CUMULATIVE TRAJECTORY LENGTH CALCULATION
using Haversine formula

↓

DISPERSION AREA ASSIGNMENT

at each point along the trajectories with dispersion radius equals to 5 %, 10 %, 15 %, and 20 % of the cumulative trajectory length at that point

↓

IDENTIFICATION OF FIRE OUTBREAKS
within dispersion area
using FLAMBE data

↓

CALCULATING MEAN FIRE EMISSION
for each BB aerosol source area

using FLAMBE data

↓

NO THRESHOLD method
Count each mean fire emission

PBL method
Count mean fire emission if altitude of the trajectory points is below PBL height

(PBL height from HYSPLIT)

CAMS method
Multiply mean fire emission by the probability that smoke-plume (CAMS GFAS data) will be elevated at the height of the trajectory point

↓

AGGREGATION OF DAILY EMISSIONS
Sum up mean fire emissions to get daily fire emission

↓

BB AOD-WEIGHTED CONTRIBUTION ANALYSIS

For each region, compute its contribution to BB AOD as the weighted mean of the mean daily fire emissions, using the same-day BB AOD (NAAPS) as the weight.