

Minutes Kick-off Meeting INFLAMES

Wageningen University, 21-01-2026 - Notes by Folkert and Marloes

09:15-10:30 Project and WP presentations

Project overview: “What exactly do you want to predict: fire behaviour, characteristics, impact?” (Question by Jelmer Dam)

WP1: To go beyond CO₂ emissions from fires, we should link emissions also to vegetation structure. Can we constrain OC:BC ratio in plumes?

WP2: “How easy is it to export L-E to other regions?” -> Doable within a day, when using backbone emissions (EDGAR?). Adjusting to local land use and emission inventories may take (much) more time.

WP5: “leaves with higher surface area burn faster” contested. Vegetation type or water content probably more relevant to burning likelihood. “Quick recovery observed for forests may be due to other fast-growing species, grasses and shrubs; not trees.” (Comment Sander V.)

WP6: Jelmer Dam has contacts with fire managers in Cameroon.

Other satellite observations to use: FireSat (<https://www.earthfirealliance.org/#our-solution>), geostationary (S4) – probably not within INFLAMES.

10:50-12:30 Science Talks

Dimitra Kollia: is it logical that all the NO₂ would be transported at the 5-6 km level? Can it be ruled out that part of the NO₂ is transported at lower altitudes?

Jos de Laat: Sense4Fire has developed FireAtlas that links fuel information to fire emissions (could be of use to INFLAMES). Finding: woody debris dominated fire emissions in Amazon/Pantanal fires. GFAS appears to underestimate NO_x emissions from fires, except for very large fires, whose NO_x emissions are overestimated. We should consider involving Mathias Forkel (TU Dresden) in INFLAMES.

Annabel Chantry: EarthCare provides estimates of aerosol heating rates, but these are not yet mature.

Chiel van Heerwaarden: MicroHH capabilities in simulating fire dynamics influenced by near-surface winds and realistic atmospheric conditions. Wildfire data portal (<https://wildfiredataportal.eu/>) contains descriptions of a number of large fires in Europe that may be useful to provide context for case studies.

Colette Heald: air masses sampled by aircraft were analyzed for dO_3/dCO . Finding: air masses younger than 20 hrs do not show O_3 production, older air masses do show O_3 production in line with GEOS-Chem and expected NO_x and VOC increases.

Jelmer Dam: NL is in gravest danger of fires worldwide. Not because it burns all the time, but because when it is going to burn, the country is so small that catastrophes are likely to occur. More attention should go to landscape management to prevent (ignition or spreading of) fires. "Remember that we are trying to make a more resilient world".

Question Folkert: when would you be happy with INFLAMES outcomes? Impact is more on preventive side and not so much on fire fighting side. Challenge: can we prevent uncontrollable fires? How can we make landscapes fire-proof, or introduce more controlled fires to avoid uncontrollable fires? In Zimbabwe: they may want to introduce fire in order to control it. In NL: I think we need more fire to have less fires

Sander Veraverbeke: analysis of holistic fire effects suggest climate cooling by boreal fires, for instance because in burned boreal forests snow stays on the ground longer.

Guido van der Werf: GFED v5 does not suggest major trends in fire emissions. Burned area from fire is slightly declining, but this is compensated through fuel and emission factor trends. Substantial difference GFED5-GFED4 emissions suggest that emission factors are (still) highly uncertain. Fuel load is increasing in grasslands (compensating for decreases in burned area and keeping emissions roughly constant). The explanation may be more fires in tree-covered landscape than in grasslands -> this hypothesis could be tested in WP6?

13:30-15:30 Internal Part

What should WP3 produce for the other WPs? A climatology of plume heights (of different fire types?) from lidar/ALH to evaluate injection heights of simulations. Also, a database of interesting plumes.

Can we have a non-public space on the website for internal communication and archiving (e.g. of meeting notes)?

Quarterly joint progress meetings with all interested partners; probably mostly online.