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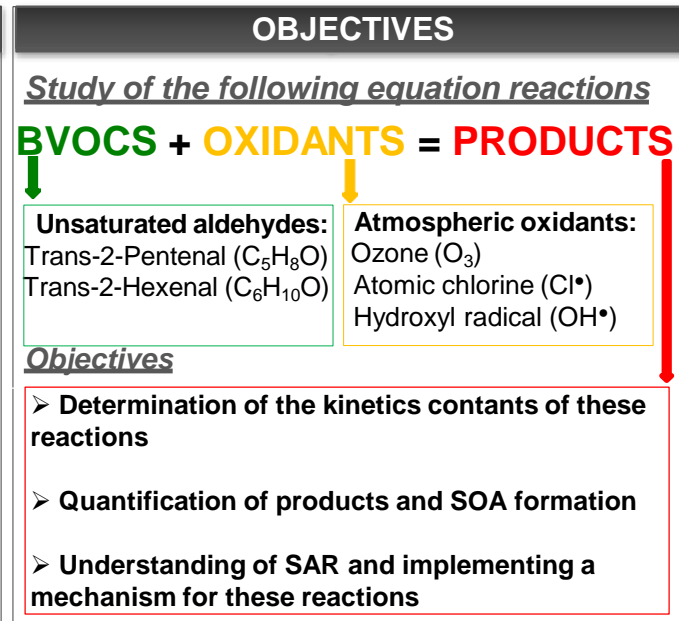
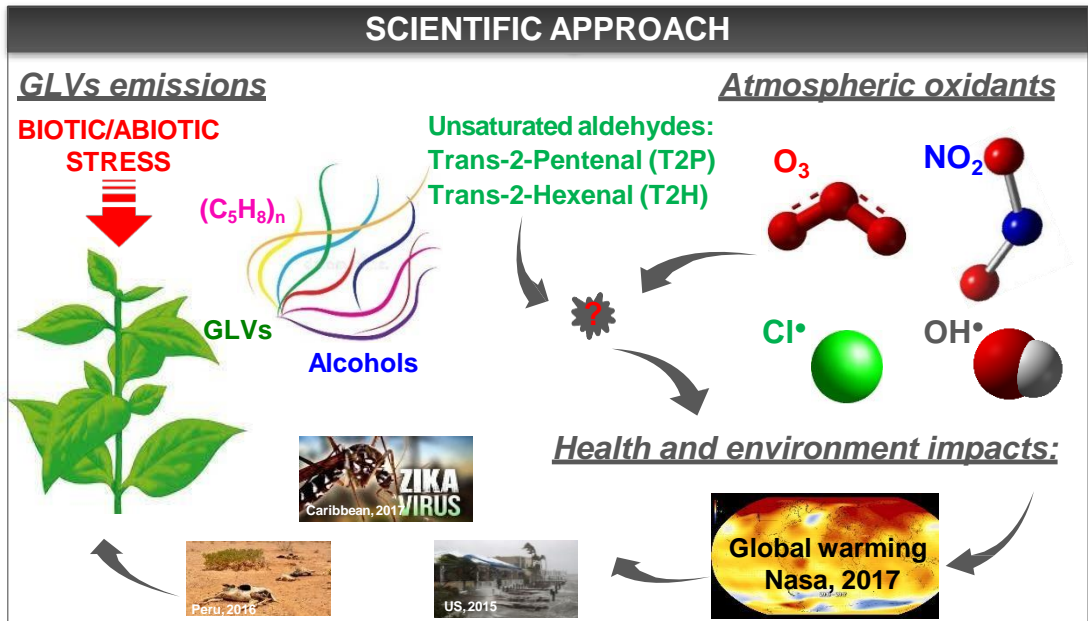
# Reactivity of Green Leaf Volatiles (GLVs) in the atmosphere : Kinetics, Products and Secondary Organic Aerosol (SOA) formation

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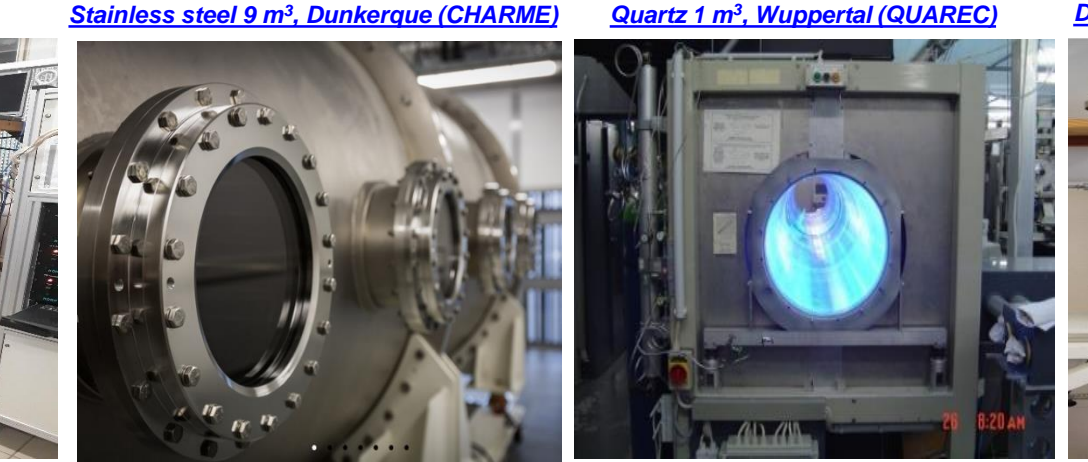
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## EXPERIMENTAL SETUPS

### Atmospheric Simulation Chambers & Laminar Flow Reactor (LFR)



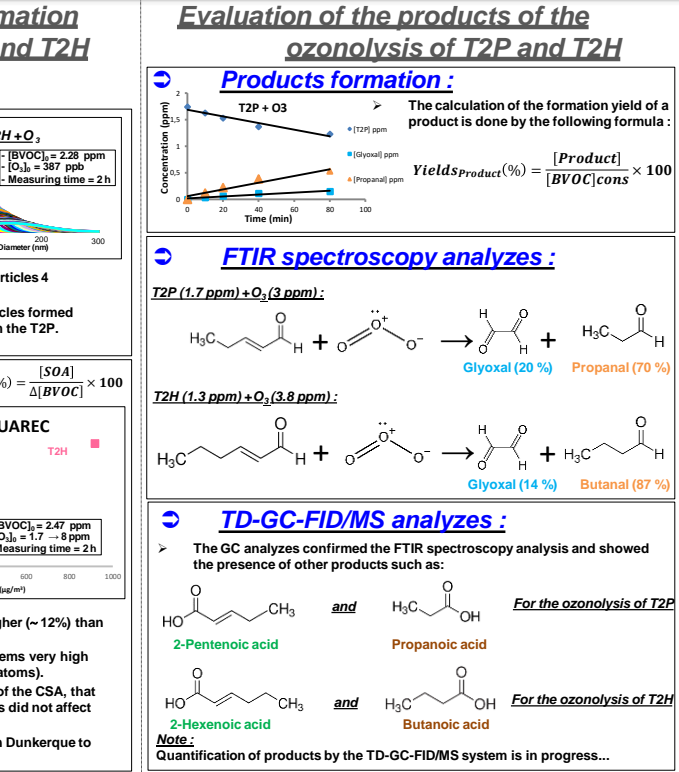
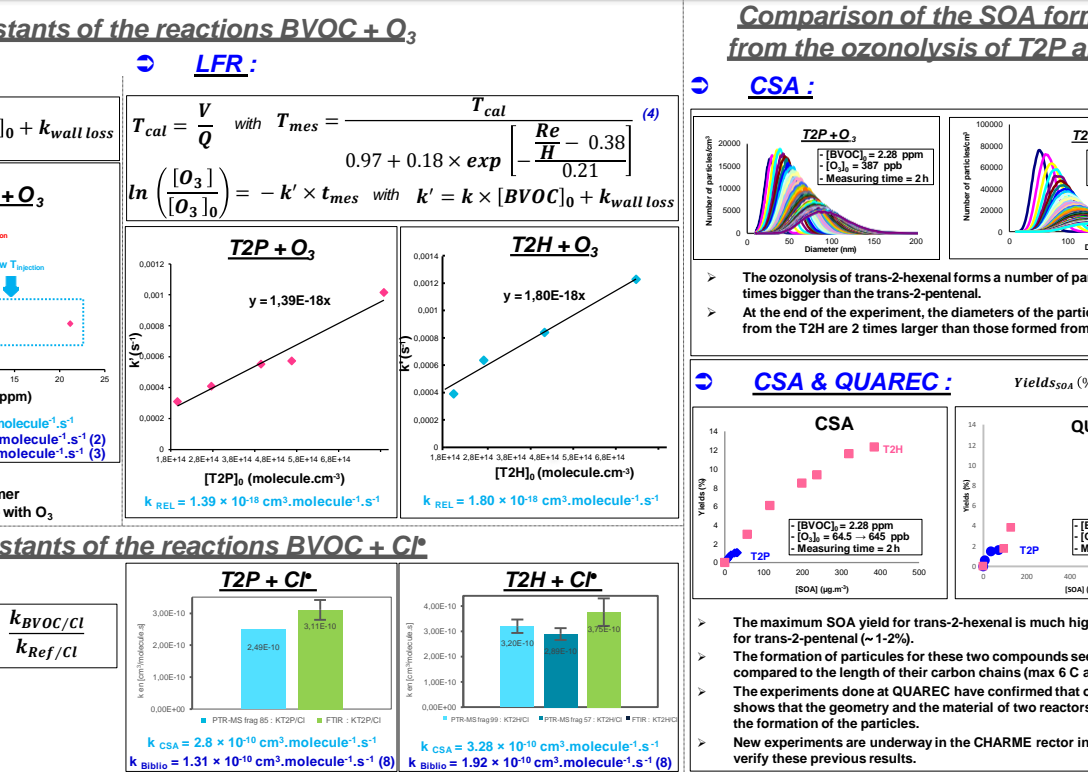
**Reactants analysis**

- Analysis of T2P and T2H by FTIR spectroscopy (CSA / QUAREC), PTR-ToF-MS IONICON 1000 (CHARME), PTR-ToF-MS Kore (CSA), GC-FID/MS (LFR)
- Analysis of ozone by UV absorption spectroscopy (Environmental SA 49C)

**SOA and products analysis**

- SOA size distribution analysis by SMPS-TSI (DMA, model 3080 ; UCPC, model 3788) in CSA and (DMA, model 3071A ; UCPC, model 3025A) in QUAREC
- Product analysis by FTIR spectroscopy and by Carbotrap-202 cartridges further analyzed by GC-FID/MS

## RESULTS



## CONCLUSIONS

- The values of the kinetic constants of the BVOC/O<sub>3</sub> reactions are in good agreement with the literature whereas those for the BVOC/Cl\* reactions are high by a factor of 2 (a single value found in the literature).
- The SOA formation is more important for T2H than for T2P and in both cases it depends on the initial concentrations of the reactants but especially on that of O<sub>3</sub>. The particle size of the particles and their yields are influenced by the structure of the BVOC.
- The products mainly formed by the ozonolysis of T2P are glyoxal, propanal but other products appear in GC-FID/MS analyzes such as: propanoic and 2-pentanoic acid. Similarly, the products of the degradation of T2H with ozone were mostly glyoxal and butanal. Additional analyzes by GC showed the presence of butanoic and 2-hexenoic acid.

## FUTURE WORK

- Quantification of products by the TD-GC-FID / MS system.
- Other T2P/Cl\* experiments in CSA are planned to ensure the results found for the kinetic constants.
- A series of experiments will be carried out at University Castilla La Mancha (Spain) in order to determine the products of the reaction of the selected BVOC with atomic chlorine (Cl\*).
- The different programs / organisms whose logos on the right are deeply thanked for their financial support.

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