

Understanding drivers and origins of nitrous oxide fluxes in agroecosystems

Fabio Turco¹, Joachim Mohn², Frank Liebisch³, Nina Buchmann¹

¹Grassland Sciences group, ETH Zurich; ²Laboratory for Air Pollution & Environmental Technology, EMPA; ³Water Protection and Substance Flows, Agroscope

1 Motivation & Method

N fertilizers

soil N₂O emissions

global warming

What is the effect of different N management on N₂O emissions?

Quantification of N₂O fluxes with Eddy Covariance technique

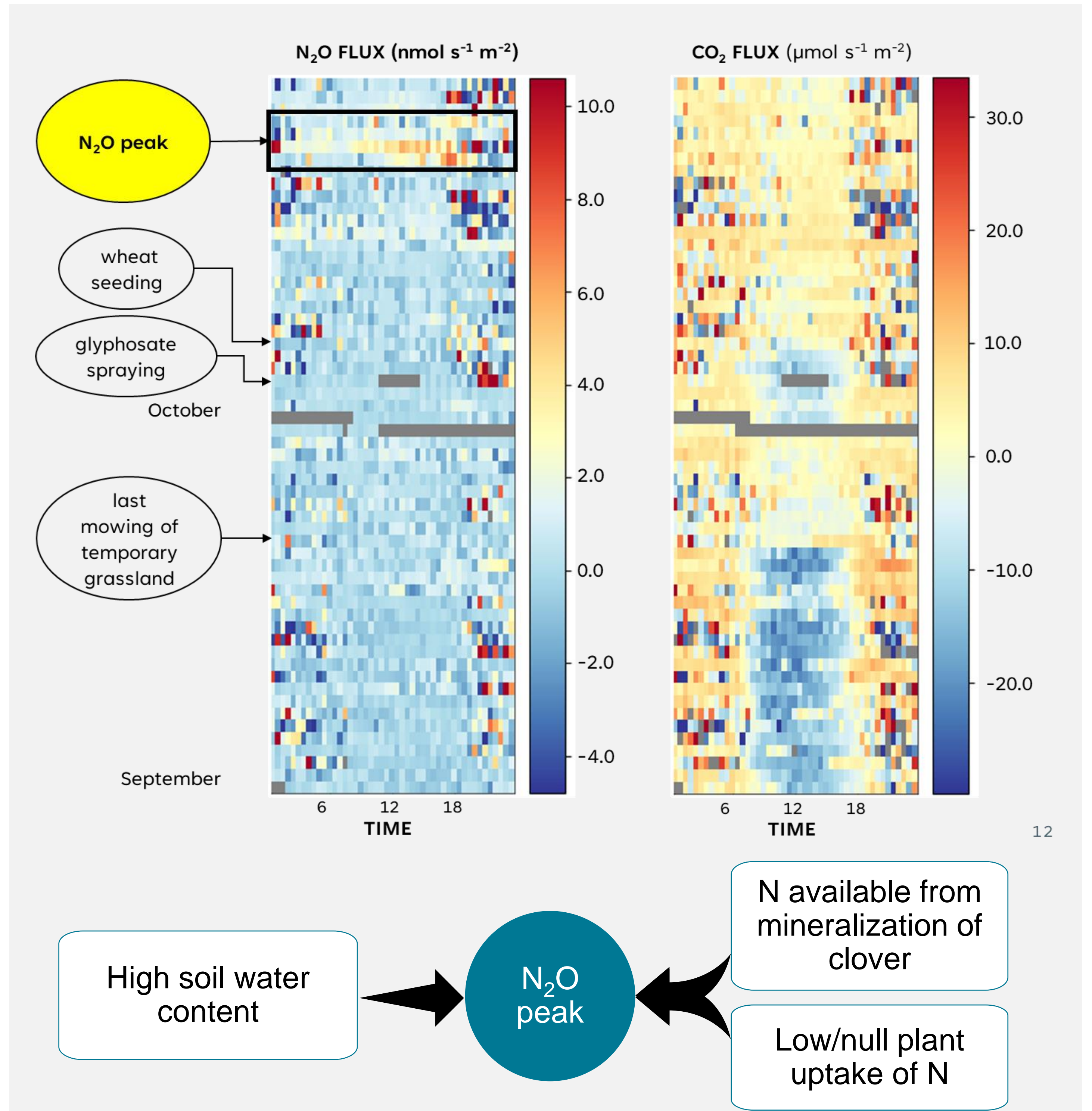
3D ultrasonic anemometer

$F = \bar{\rho} \overline{w's'}$

N₂O gas analyzer (10 Hz)

Identification of soil microbial processes responsible for N₂O production using stable isotope analysis

2 Preliminary results



3 Expected outcomes

- Better understanding of the **drivers and origins of N₂O emissions** from croplands
- Insights into the **effects of different N management** practices on N₂O emissions
- Development of **climate-smart recommendations** with/for farmers to reduce the N₂O footprint of crop production

4 Contribution to Sustainable Food Systems

13 CLIMATE ACTION

Climate change mitigation by reducing N₂O emissions from croplands

2 ZERO HUNGER

Sustainable intensification of agriculture by reducing N inputs and increasing N use efficiency

