# AVIATION $CO_2$ REDUCTIONS

## STOCKTAKING SEMINAR

TECHNOLOGY · OPERATIONS · SUSTAINABLE AVIATION FUELS

# Sustainable Aviation Fuels (SAF)

**Francesco Cherubini**

IPCC, Norwegian University of Science and Technology

# Francesco Cherubini

**IPCC Lead Author**

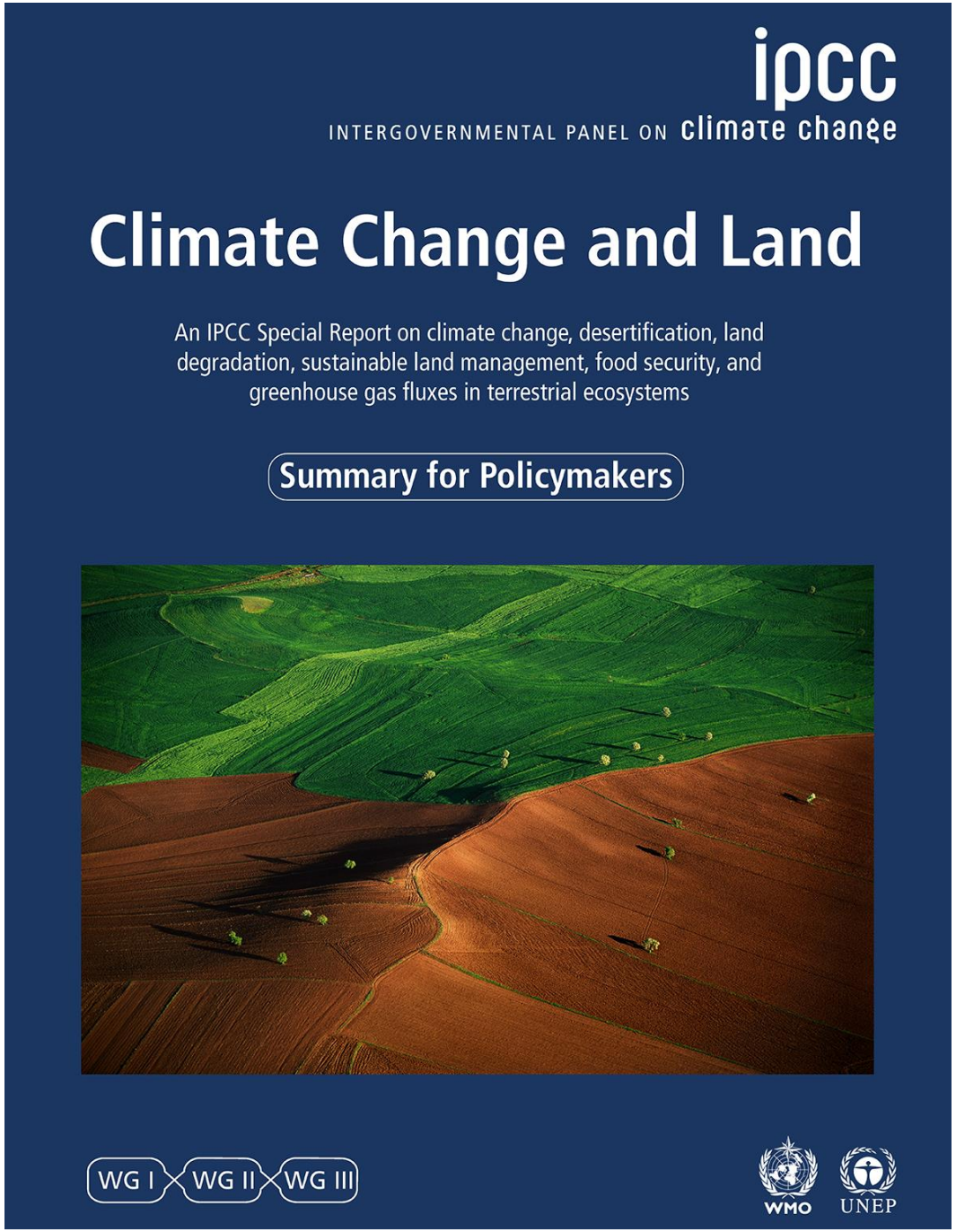
Professor & Director
Industrial Ecology Programme

Norwegian University of Science and Technology (NTNU), Trondheim – Norway

ICAO STOCKTAKING 2020

ipcc
INTERGOVERNMENTAL PANEL ON climate change

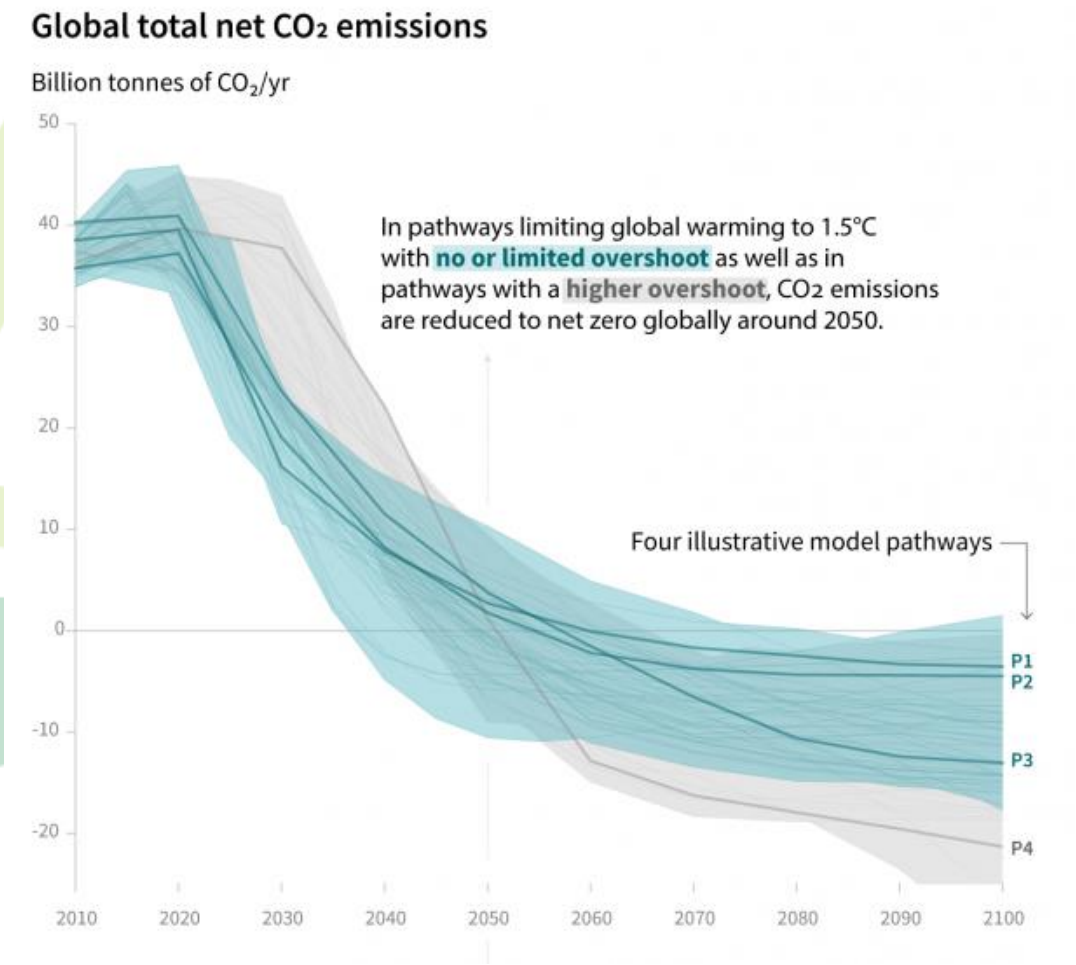
WMO UNEP



# The Challenge ahead



**<u>1.5°C goal:</u> $CO_2$ emissions should decline by about 45% by 2030 and reach net zero around 2050**




IPCC SR1.5, SPM

# Bioenergy & Climate Change Mitigation



**Sustainability-focused**
**(SSP1 at 1.5°C)**

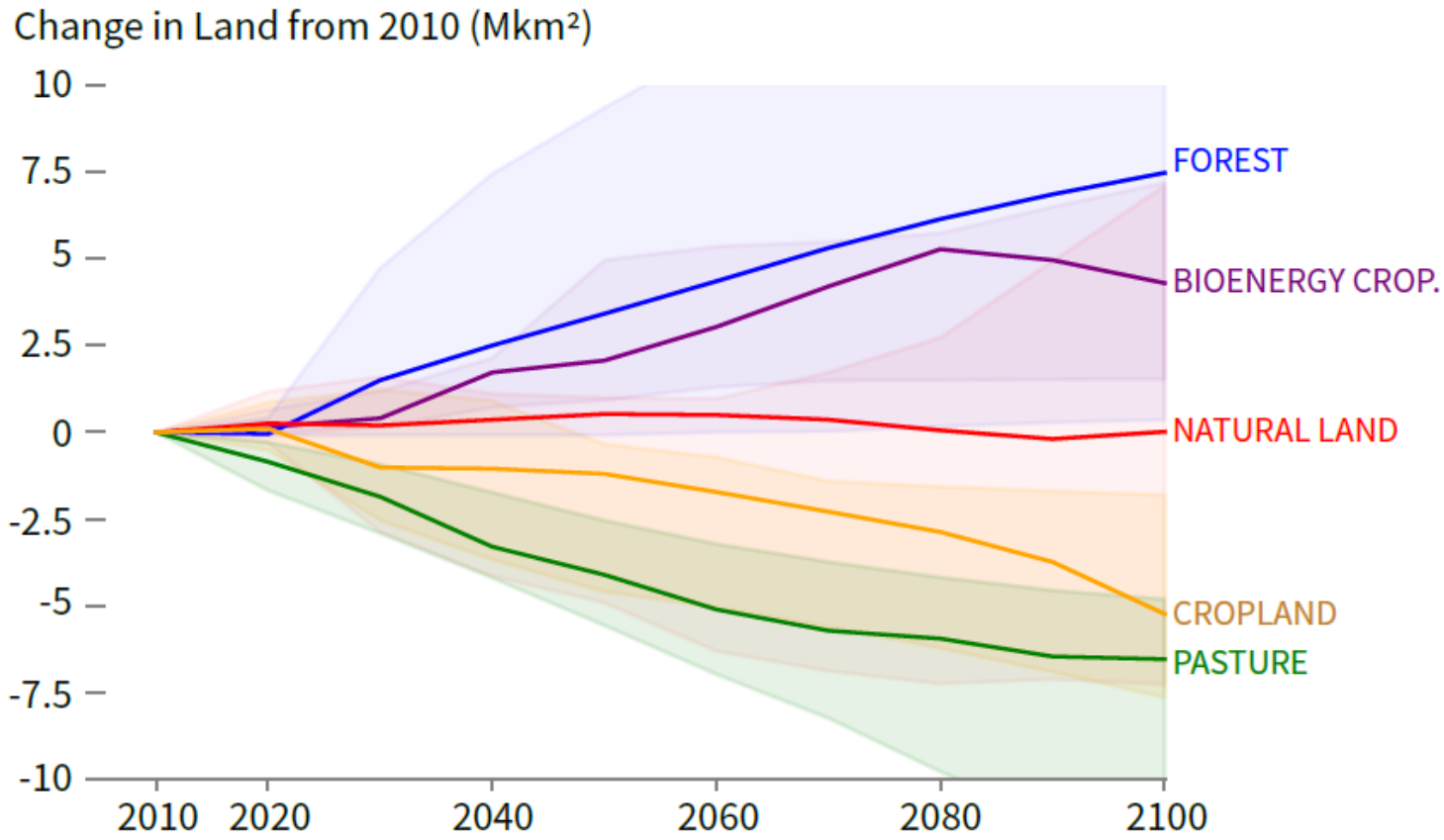



Figure SPM.4

# Bioenergy



Impacts depend on the scale of deployment, initial land use, bioenergy feedstock, climatic region and management regime (*high confidence*).

# Bioenergy & The role of previous land use



**Bioenergy crops on previous forest land (deforestation):** large $CO_2$ emissions from loss of vegetation and soil carbon, loss of many ecosystem services

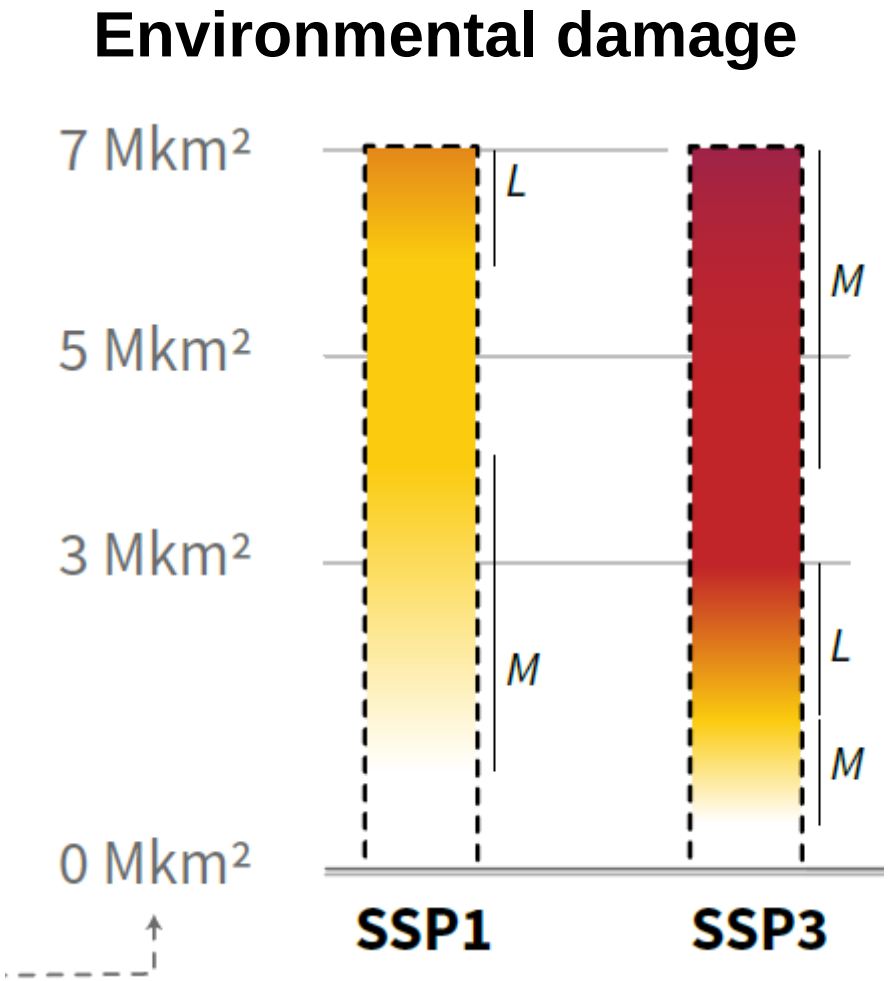
**Bioenergy crops on grassland:** effects are case-specific (depend on climate, type of vegetation and bioenergy crop)

**Bioenergy crops on cropland:** typically increases soil carbon and improves many ecosystem services

**Bioenergy from forestry:** case-specific effects that change over time (benefits are usually larger in the longer term), location, management practice, and accounting

# Future socioeconomic pathways affect risks from large-scale bioenergy deployment





nature sustainability

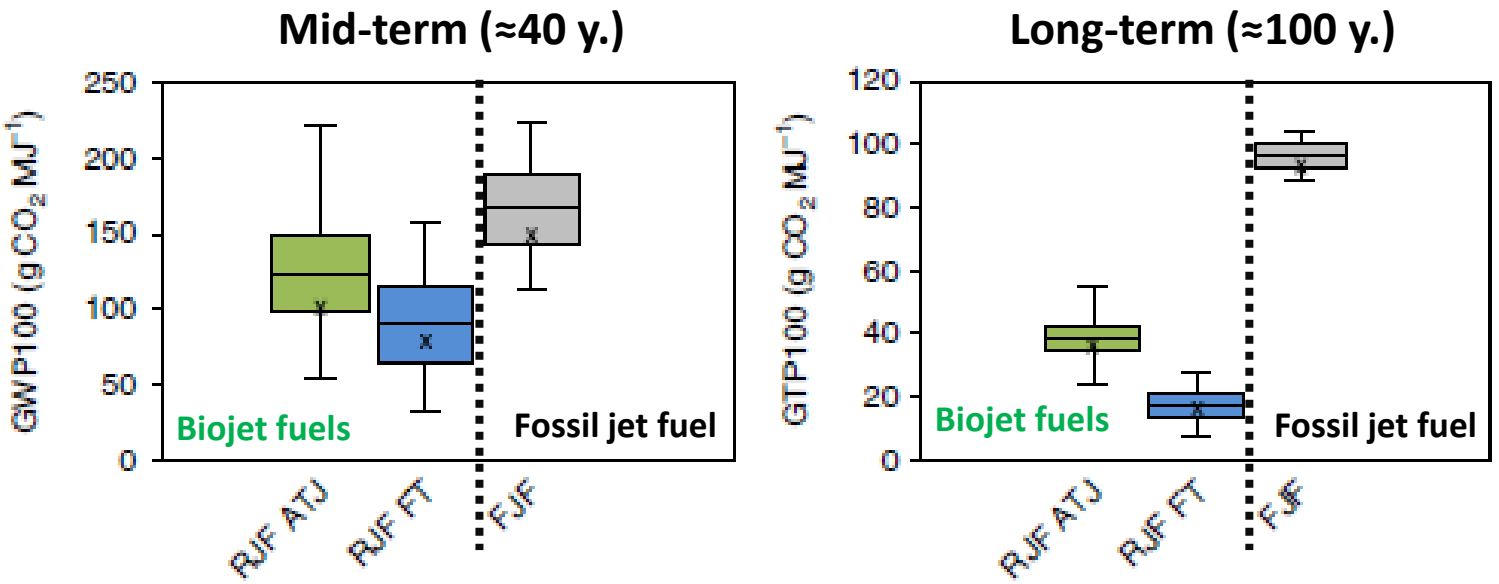
ANALYSIS

https://doi.org/10.1038/s41893-018-0181-2

# Contribution of jet fuel from forest residues to multiple Sustainable Development Goals

Otavio Cavalett * and Francesco Cherubini

**10 PJ/year (20% of jet fuel use) from forest residues in Norway**




# Thank You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