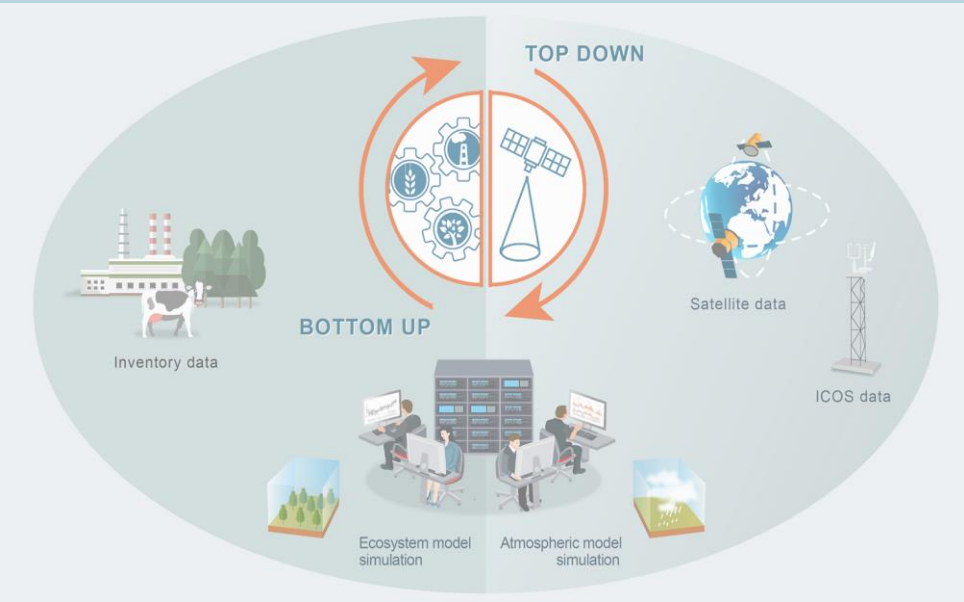
VERIFY General Assembly

Feedback from Citepa – French National Inventory Agency – LULUCF CO2 / Colas ROBERT

May 9th -11th , 2022



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FR-CITEPA FEEDBACK ON LULUCF CO2 - GENERAL

Interests of comparing TD vs BU approaches for CO2 LULUCF

LULUCF : complex sector with high uncertainty (40% for total CO2 LULUCF Fr).

Metropolitan France: all land considered managed but not all fluxes are estimated.

- Good quality ground survey of forest trees and carbon fluxes estimations
- Lower quality of estimation (or default hypothesis) for other land categories/ carbon pools

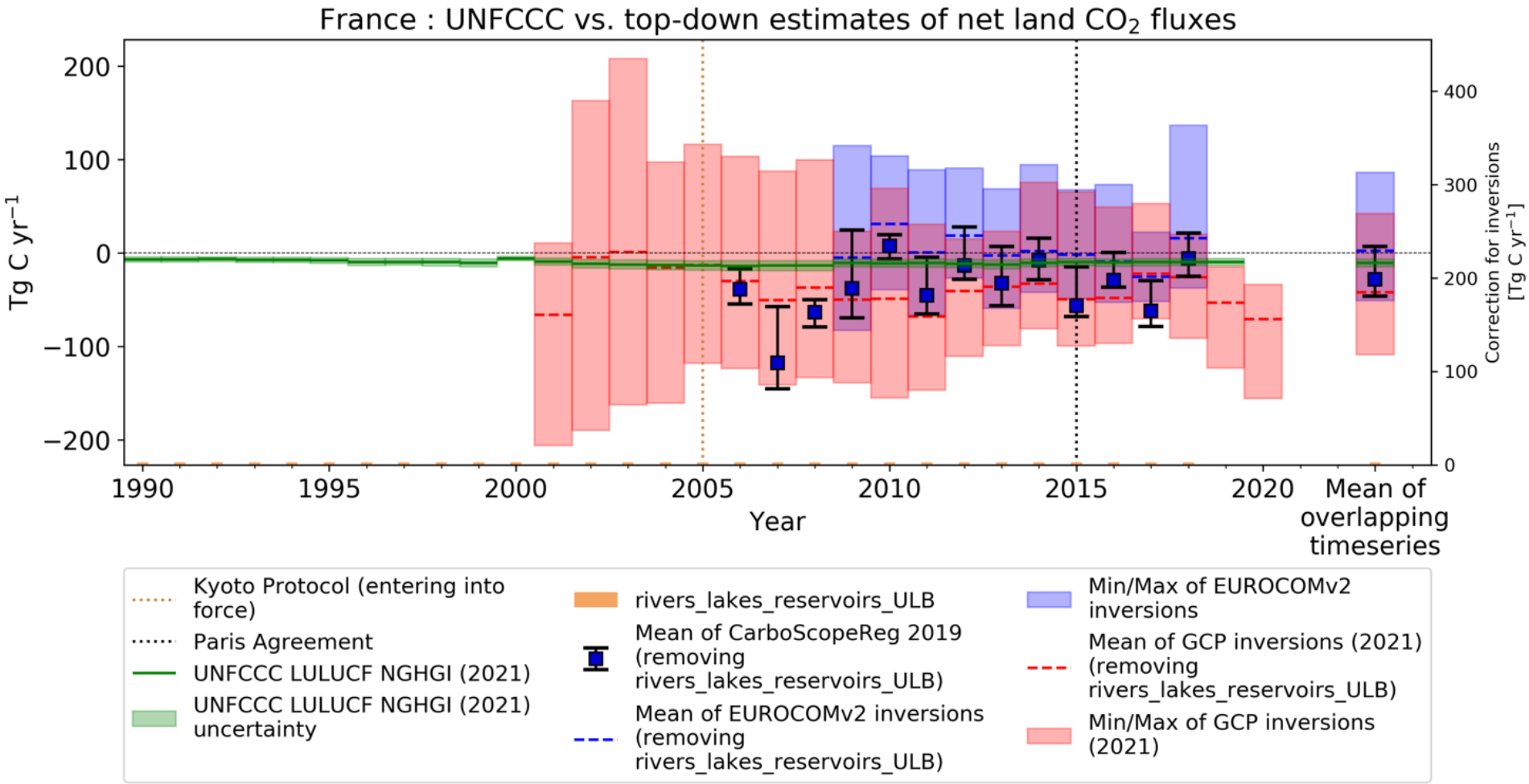
-> interest to compare and learn from observation-based flux estimates

EVALUATION DES SOURCES CLES - ANALYSE EN NIVEAUX D'EMISSIONS TIER 2

source CITEPA / format CCNUCC - Mars 2022 — CITEPA-s_clés_tier2-GES.xlsx/KCA T2 niveau

	Catégorie de source du GIEC / combustible	Gaz	Emissions 2020 kt CO2e	Incertitude émissions (%)	Evaluation du niveau (%)	Total cumulatif	Catégorie clé Tier2 (à 90%)	Catégorie clé Tier1 (à 95%)
4B2	Land converted to Cropland	CO2	18 340	41	5,10	55,9	4	6
4B1	Cropland remaining Cropland	CO2	-6 832	100	4,64	60,5	5	20
4A1	Forest Land remaining Forest Land	CO2	-24 144	18	2,95	67,0	7	4
4C2	Land converted to Grassland	CO2	-7 457	51	2,58	69,6	8	15
4A2	Land converted to Forest Land	CO2	-7 245	51	2,51	72,1	9	16
4E	Settlements	CO2	10 744	32	2,33	76,8	11	12
1A3b	Road transportation	CO2	103 240	3	2,22	79,0	12	1
1A4b	Residential / gas	CO2	25 232	5	0,92	83,7	15	3
4C1	Grassland remaining Grassland	CO2	-1 087	100	0,74	87,7	20	50

LULUCF CO2 - TD VS INVENTORY VERIFY SYNTHETIC PLOTS



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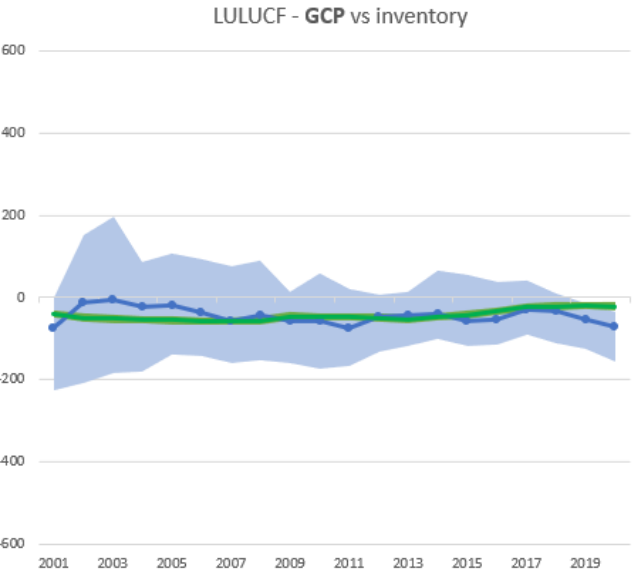
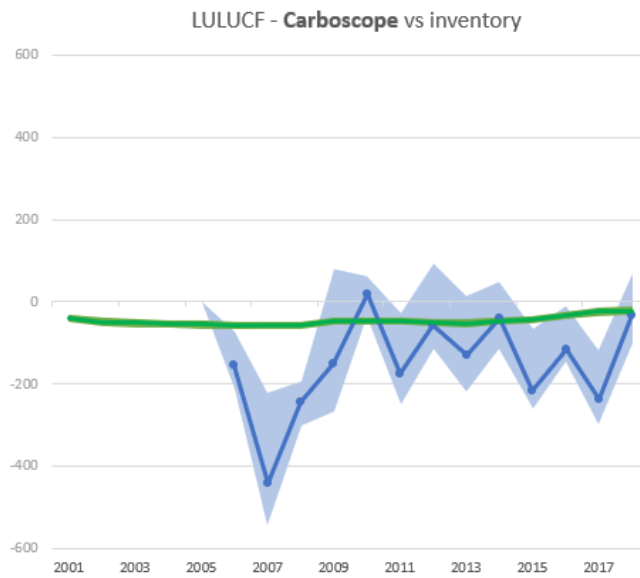
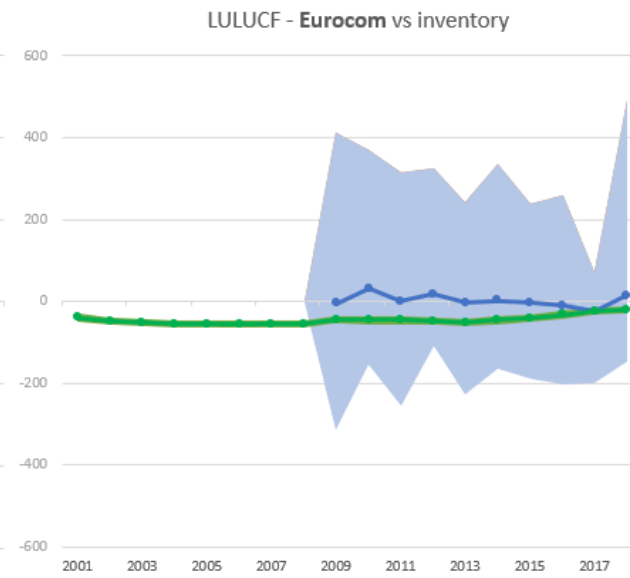
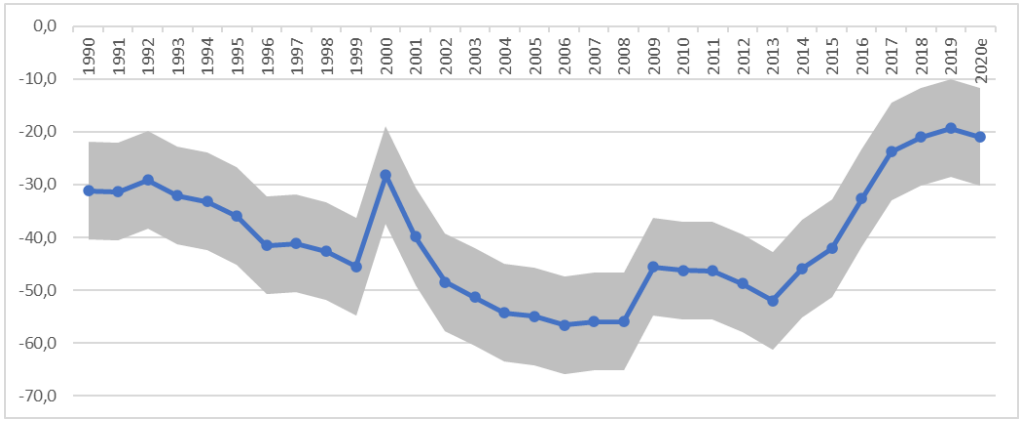






First remarks:

- **not our usual scale of analysis !**
- **Geographic Perimeter ? (UNFCCC : with overseas territories)**
- **Removing lakes fluxes (from another model)…**



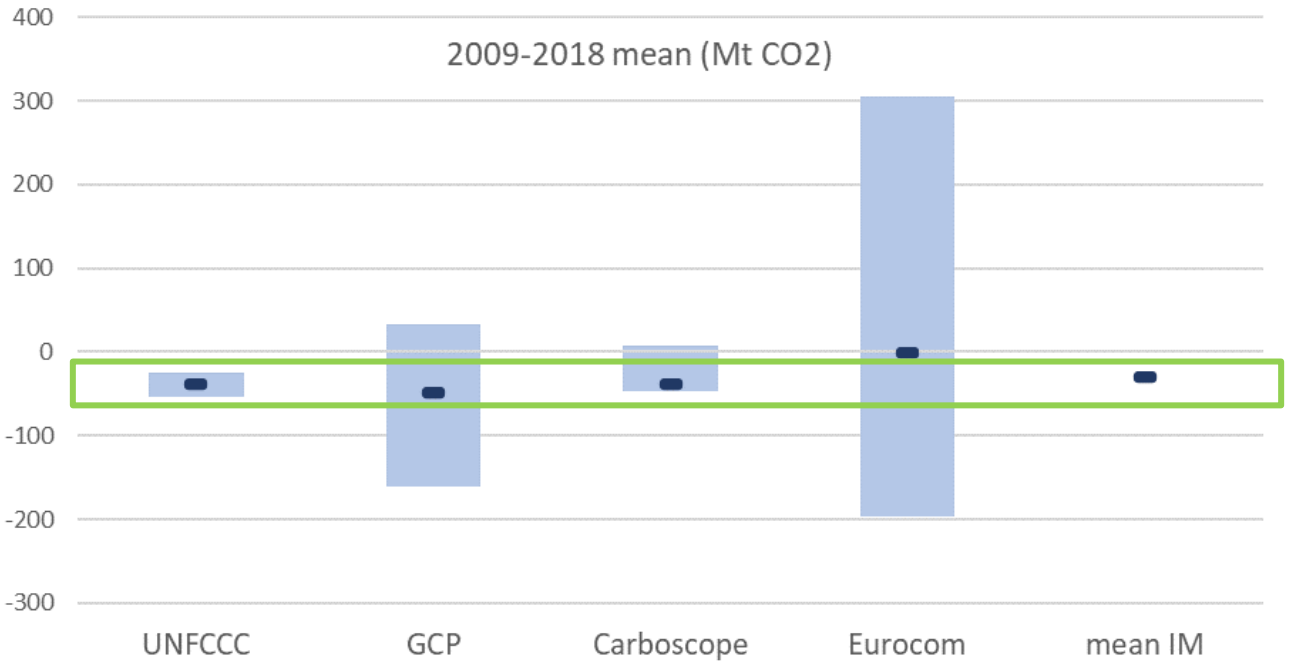
FR-CITEPA FEEDBACK ON LULUCF CO2 | MEAN FLUX

Mean data over a comparison period - TD inverse models vs BU inventory:

Do they agree on a net sink over the period ? **Yes** except for Eurocom

Do they agree on a mean flux ? **Mostly**

Difference of 33% with the lake correction | 100% without



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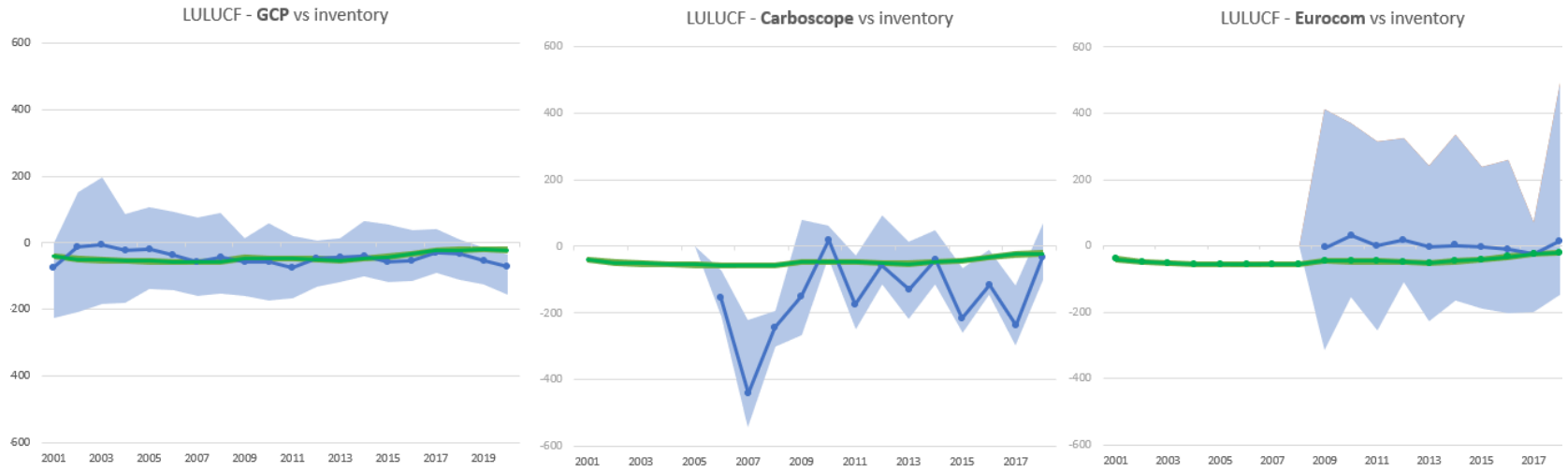
Interannual variation :



A much **higher amplitude** than in the inventory [2009-18]

Inventory : ~10 Mt CO2 ; **GCP ~50Mt; Carboscope ~70Mt; Eurocom ~200Mt**

Interannual variations are not comparable between TD & inventory:

Inventory : -21% to +7%/y ; **GCP -47% to +41 %; Carboscope -95% to +2250%/y ; Eurocom -870% to +600%/y**

Inventory relies mostly on measurement based data from forest and soil carbon stocks + land-use change areas. Surveys with less sensitivity of interannual variation.

FR-Citepa feedback on LULUCF CO2

Trend comparison :

Long term trend (1990-2021)

Inventory : increase of the sink 1990-2008 (except for the storm effect in 2000) then decrease.

IM : not a clear trend (interannual variation, shorter period)

recent trend (2015-2021)

Inventory : Acceleration of the decreasing sink (droughts, pests)

IM : no agreement on a recent decreasing sink

Need for further investigations for both TD and BU LULUCF approaches

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Summary and perspectives

What can I conclude as inventory compiler ?

Level : Verify outputs are useful to check the general magnitude of sink, having in mind the strength of IM to consider all fluxes that could be not (well) estimated in the inventory

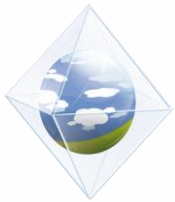
Interannual variation : not yet useful / easy to interpret.

Trend : not yet useful. Our scale of analysis is much smaller

From these 3 criteria, GCP looks more consistent.

To further be able to use such products in QA/QC procedure, need for:

- clarification on whether all IM and inventory reflect the same perimeter (excluding the same natural fluxes and geographical perimeter)
- agreement on trends and levels to be able to use several models
- disaggregation (regions / type of land use…) to understand what may be different
- More transparency and easy access on models' methodology and assumptions



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THANK YOU FOR YOUR ATTENTION

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