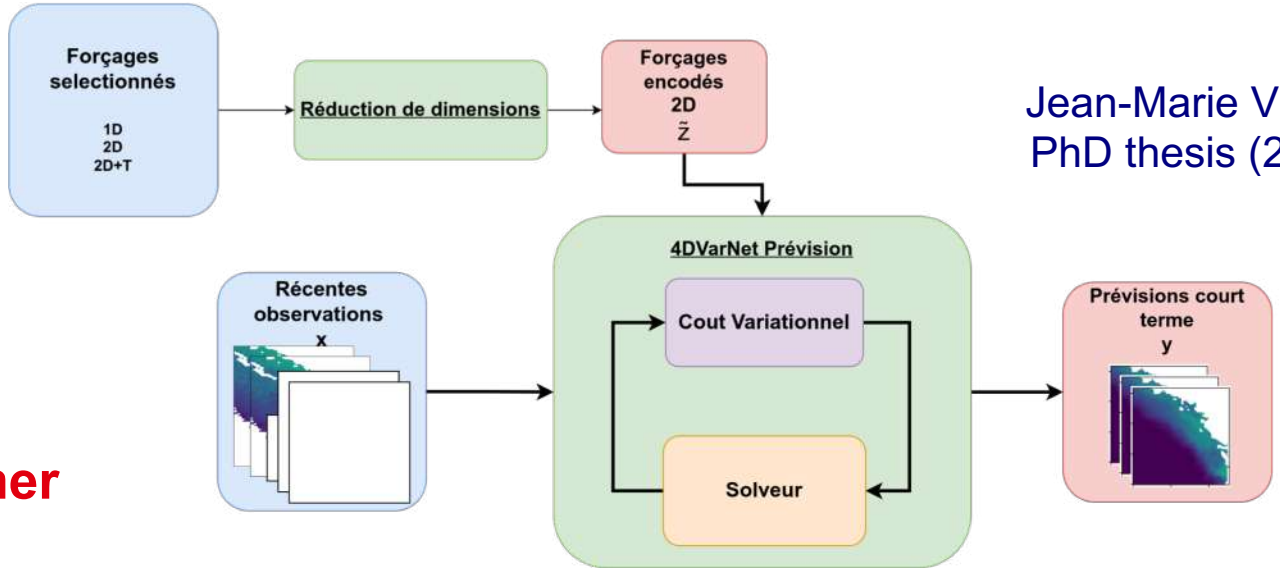
ODATIS

« La transparence de l'eau »

F. Jourdin, J-M. Vient, C. Dorffer, R. Fablet, F. Bourrin, C. Delacourt

photo : JM Vient

4DVarNet (data-driven assimilation)



Jean-Marie VIENT
PhD thesis (2022)

MODIS

OC5-Ifremer

+

Marée (Shom)	Bathymétrie (Sextant)	Vague (Hs) HOMERE
1D temporel	2D spatial	2D spatial + 1D temporel
RNN	AutoEncoder	AutoEncoder Convolutionnel

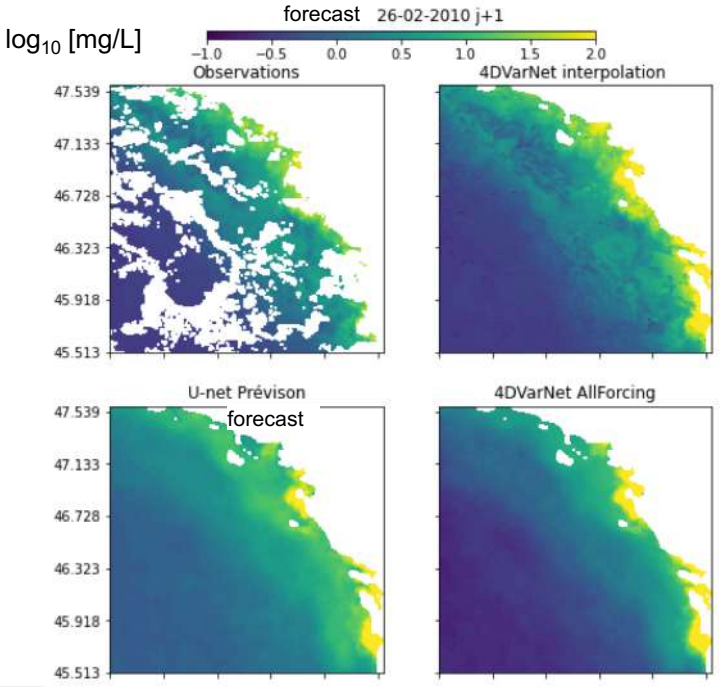
2003 — 2009 — 2010 — 2011 — 2019

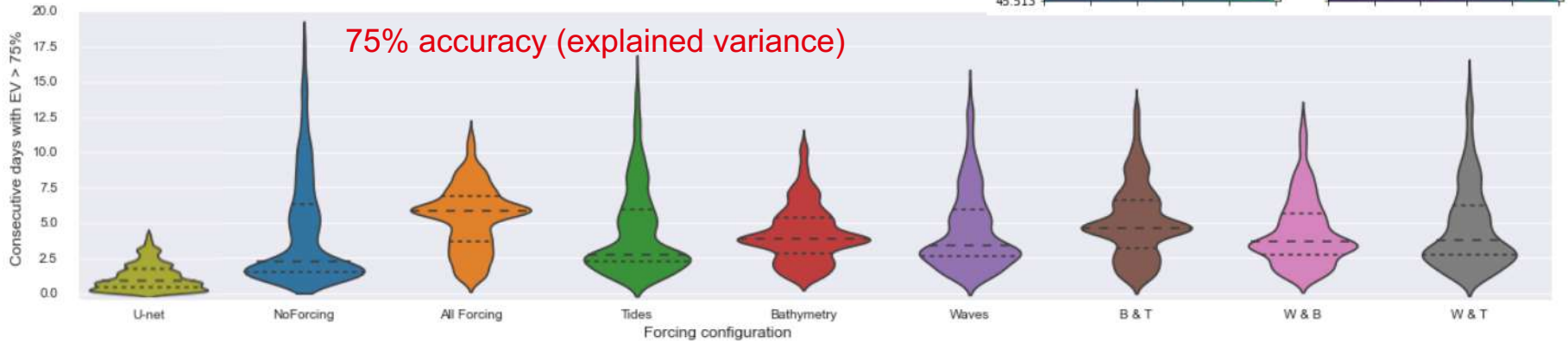
Results (NAP)

Mesure	OI	DInEOF	4DVarNet
RMSLE	0.35	0.25	0.16
R^2	0.57	0.74	0.87

Gradient	OI	DInEOF	4DVarNet
RMSLE	0.32	0.12	0.08
R^2	0.57	0.67	0.95

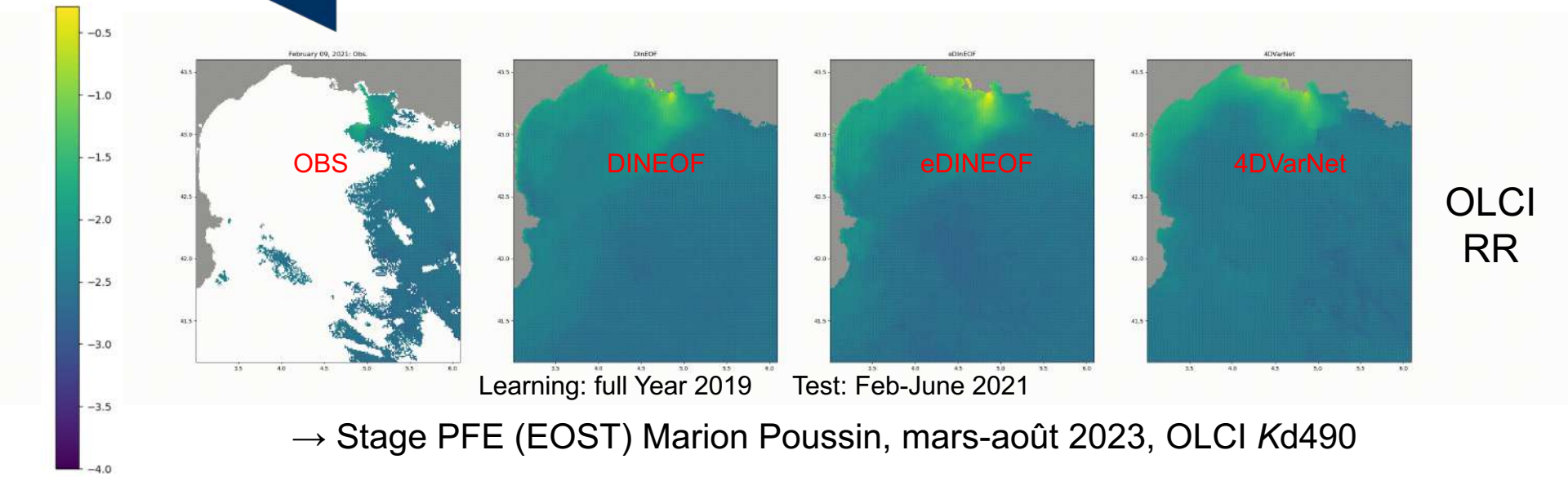
Error metric (Day 3) without forcings	4DVarNet interpolation	4DVarNet forecast	U-net forecast
RMSLE (spatial gradient)	0.08	0.18	0.25
Explained Variance	90%	72%	64%





ANR FISH-PREDICT (U. Montpellier)

Prédire la biodiversité des poissons récifaux grâce à l'intelligence artificielle
Clément DORFFER, Ronan FABLET (Lab-STICC)



Learning: full Year 2019 Test: Feb-June 2021

→ Stage PFE (EOST) Marion Poussin, mars-août 2023, OLCI *K*d490

→ 'European Digital Twin Ocean' EDITO-Model Lab (Horizon Europe, Mercator)

Task 6,2 (Focus Application): 4DVarNET to construct 3D turbidity fields and Lagrangian emulators for residence time at coastal target resolution (~100m). Fusion Delft3D-FM + HR-OC, in association with Stichting Deltares (NL).

ANR AM MELANGE project
F. Bourrin (CEFREM)

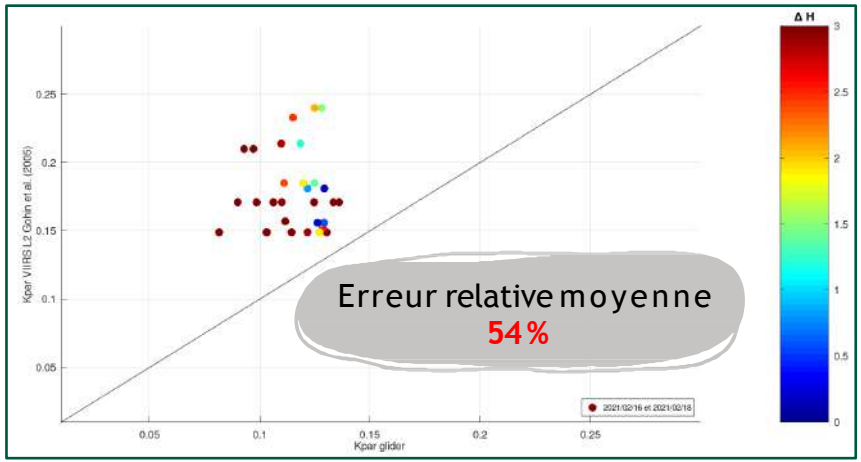
MELANGE-ROEC survey (February 13-19, 2021)

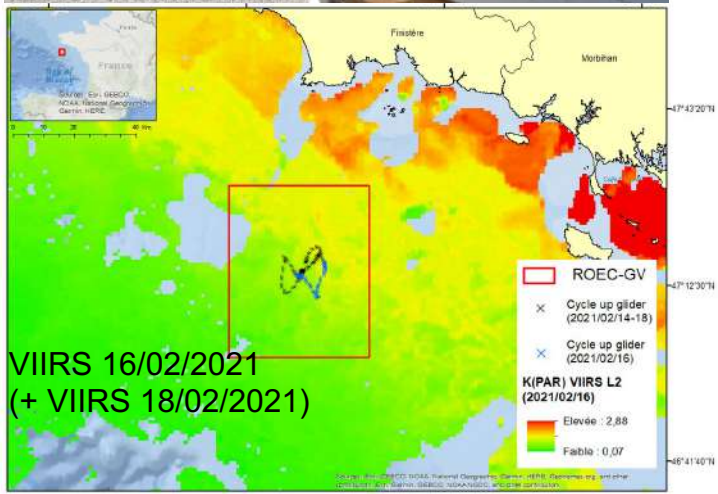
Updating Gohin et al. (2005)

$$K_{PAR} = 0.06 + 0.05 \times [SPIM] + 0.05 \times [Chla]^{0.75}$$

$$K_{PAR} = 0.015 + 0.05 [SPIM] + 0.05 [Chla]^{0.75}$$

→ Mason et al. (2016)

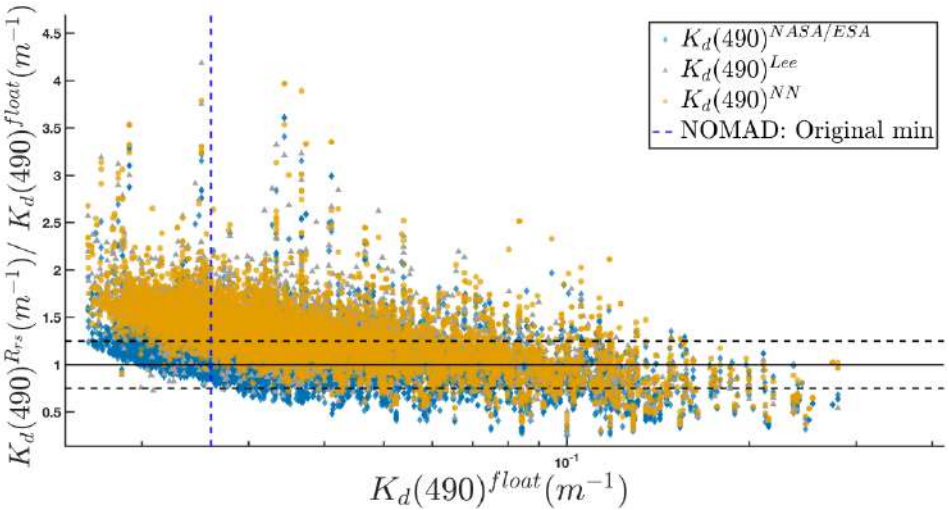


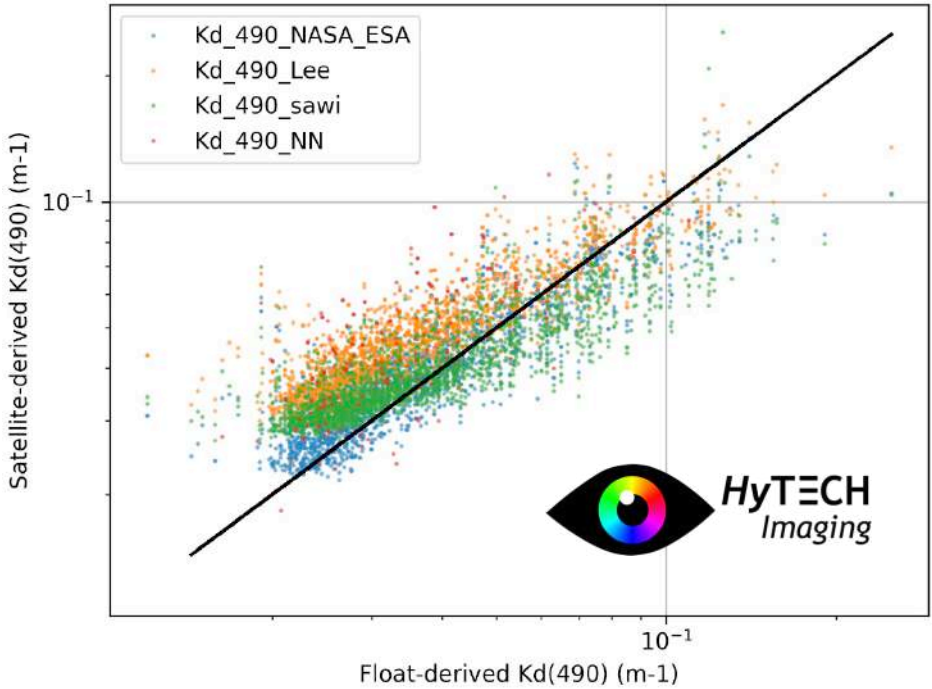


Large bias of *K*d algorithms in clear waters!

Comparison of satellite-derived and float-derived Kd(490) for the MODIS-Aqua, MODISTerra, VIIRS-JPSS, VIIRS-SNPP, OLCI-S3A and OLCI-S3B sensors

Begouen Demeaux and Boss 2022, *Remote Sensing.*

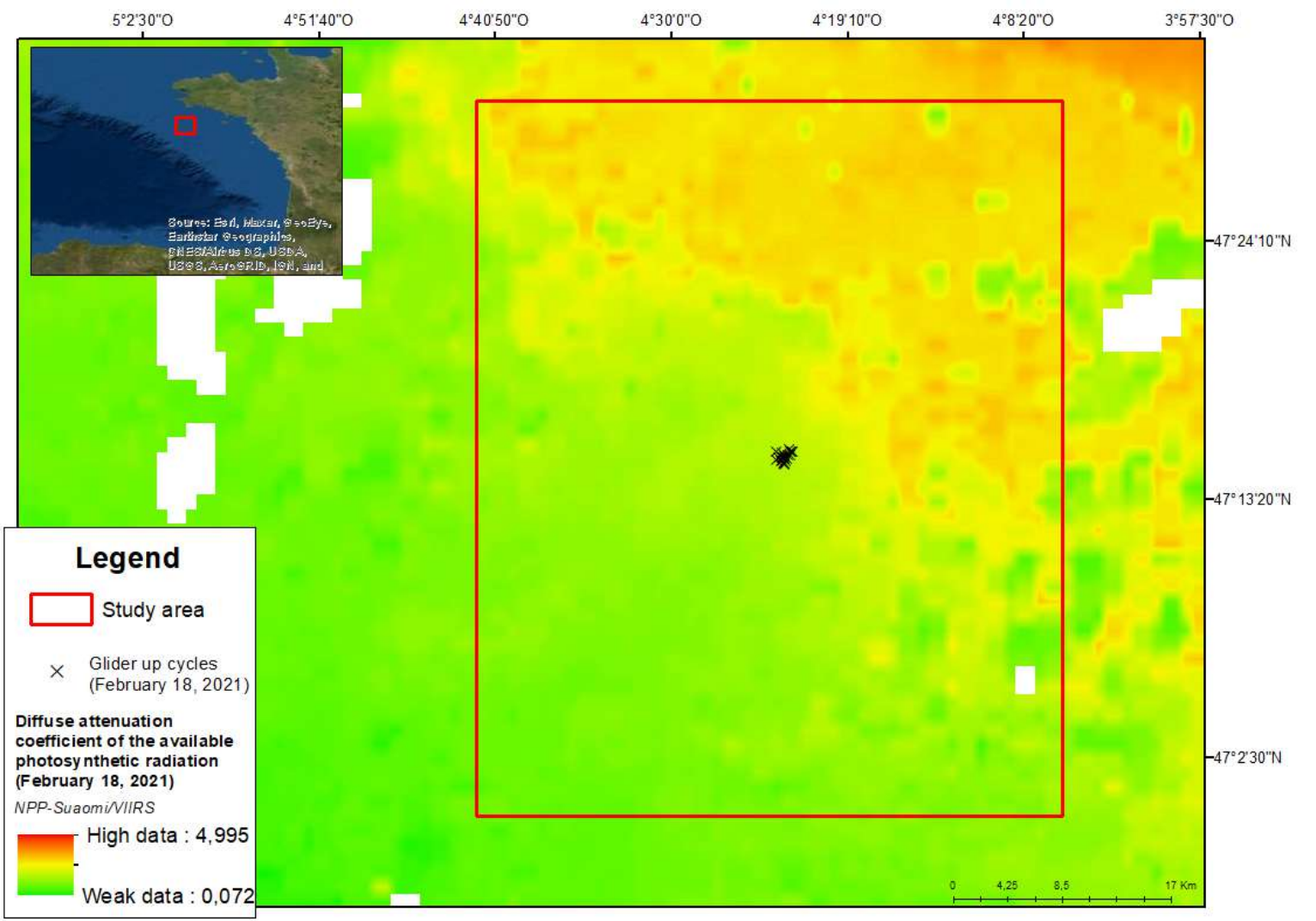




RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

SHOM
300 ans d'hydrographie

MERCI !



VIIRS
Feb. 18, 2021