climate change initiative

OCEAN SURFACE HEAT FLUX

CCI colocation & CMUG integration meeting 2026: Presentation of the CCI-OSHF project

24- 26th March 2026

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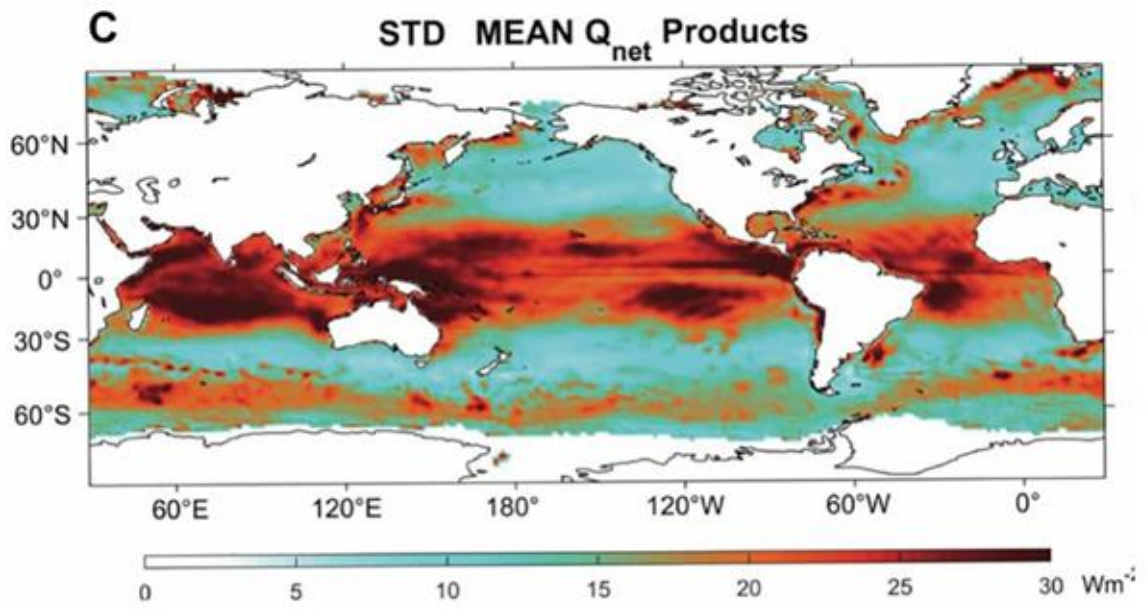
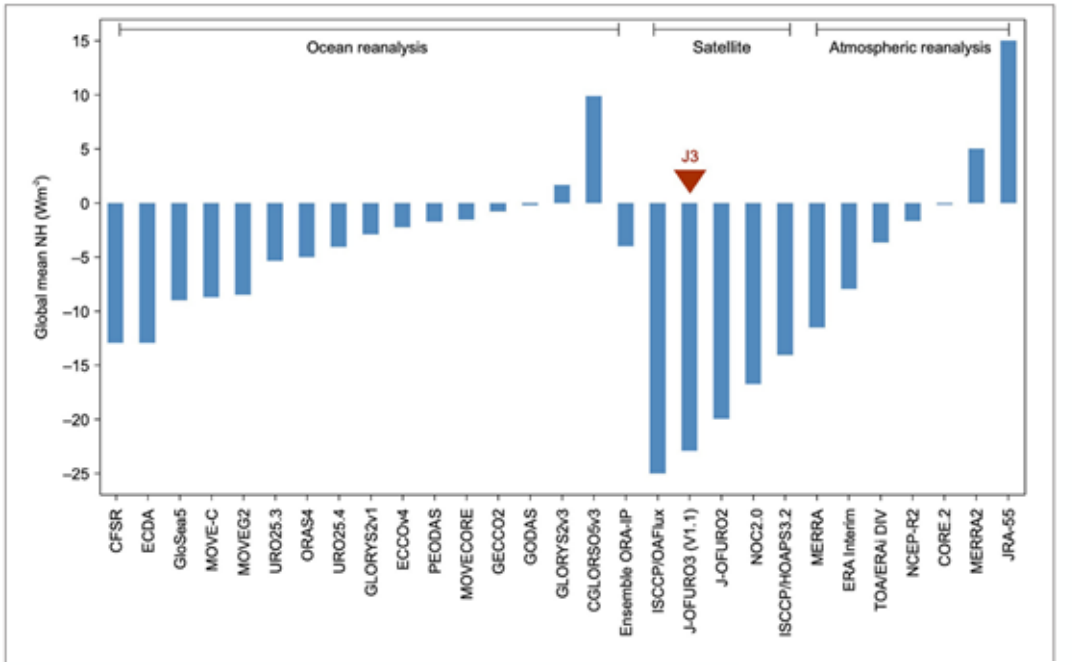
The goal

To create a new Climate Data Record (CDR) for total Ocean Surface Heat Flux (OSHF), enhancing the spatio-temporal resolutions better approaching the GCOS requirements, and complementing other existing products.



Cronin, 2019



Tomita, 2021

The team

CCI-OSHF

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ZBT

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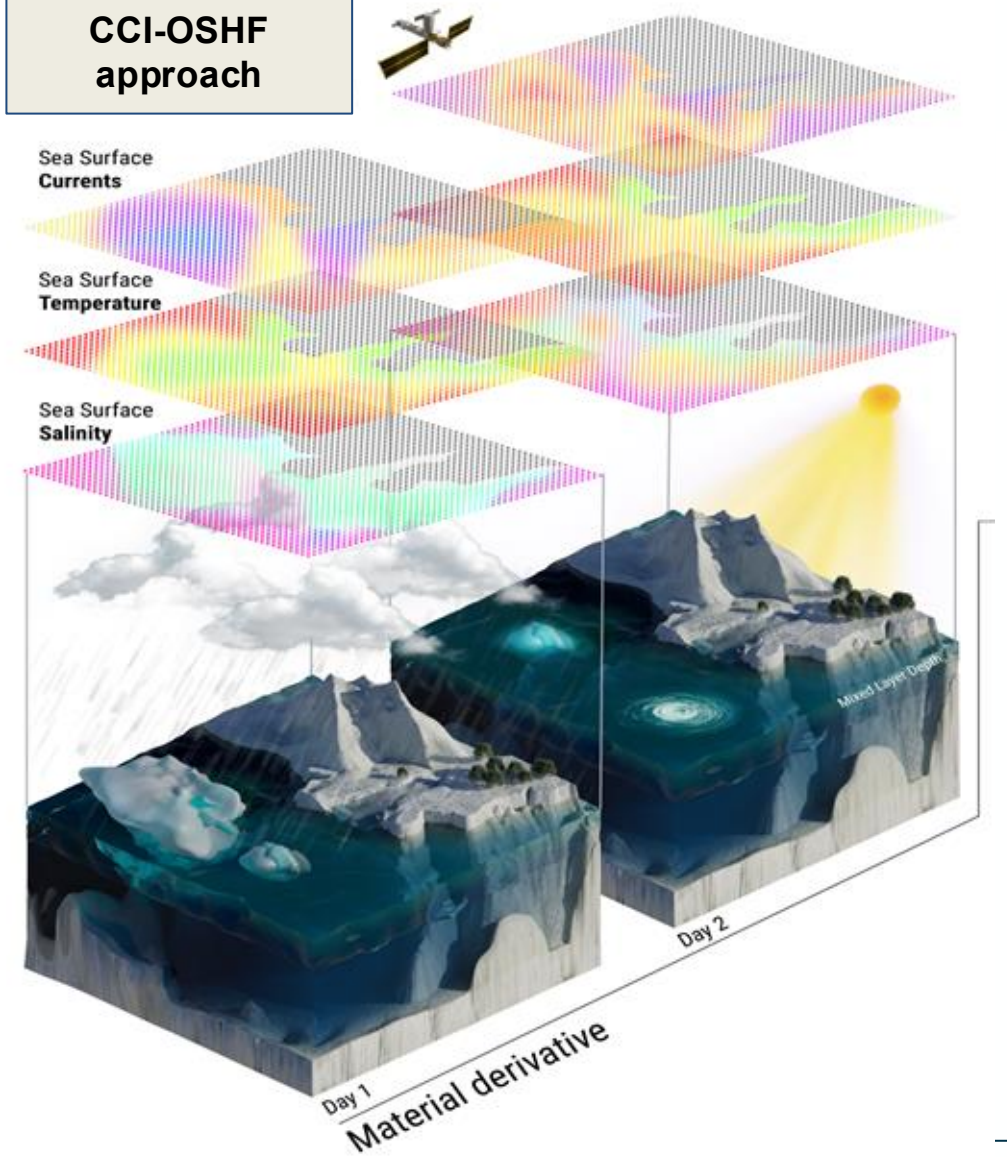
SHINY EARTH

The approach

CCI-OSHF approach



$$\frac{Dq}{Dt}h = h\left(\frac{\partial q}{\partial t} + u \cdot \nabla q\right) = \underbrace{\left(Q_{SW} - Q_{SW(-h)} + Q_{LW} + Q_{sen} + Q_{lat}\right)}_{f_q} + \underbrace{\kappa\nabla^2 q}_{d_q} + \underbrace{(q_0 - q_{-h})\left(\frac{Dh}{Dt} + w_{-h}\right)}_{h_q}$$

Satellite observations: Sea Surface Temperature, Sea Surface Salinity and Sea Surface Currents

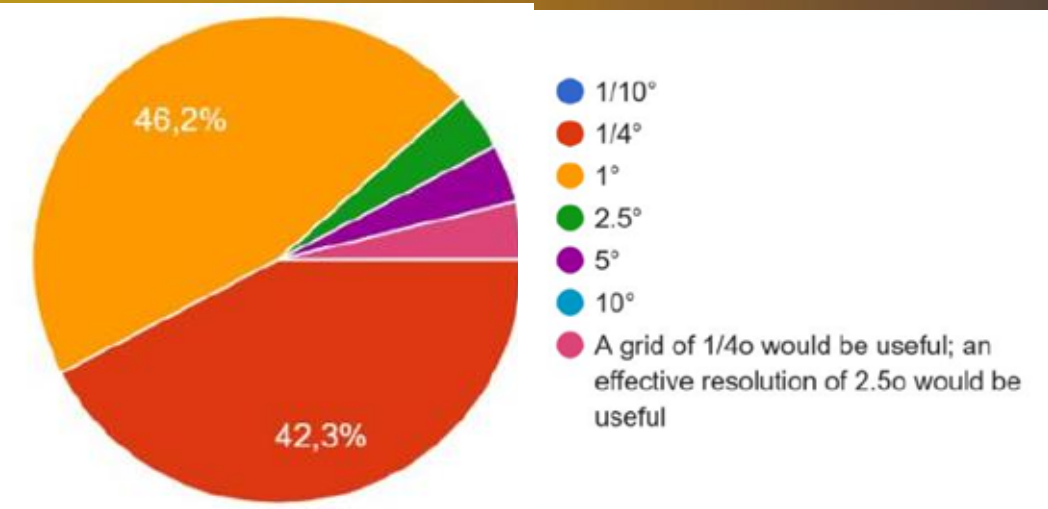
In situ observations: Mixed Layer Depth

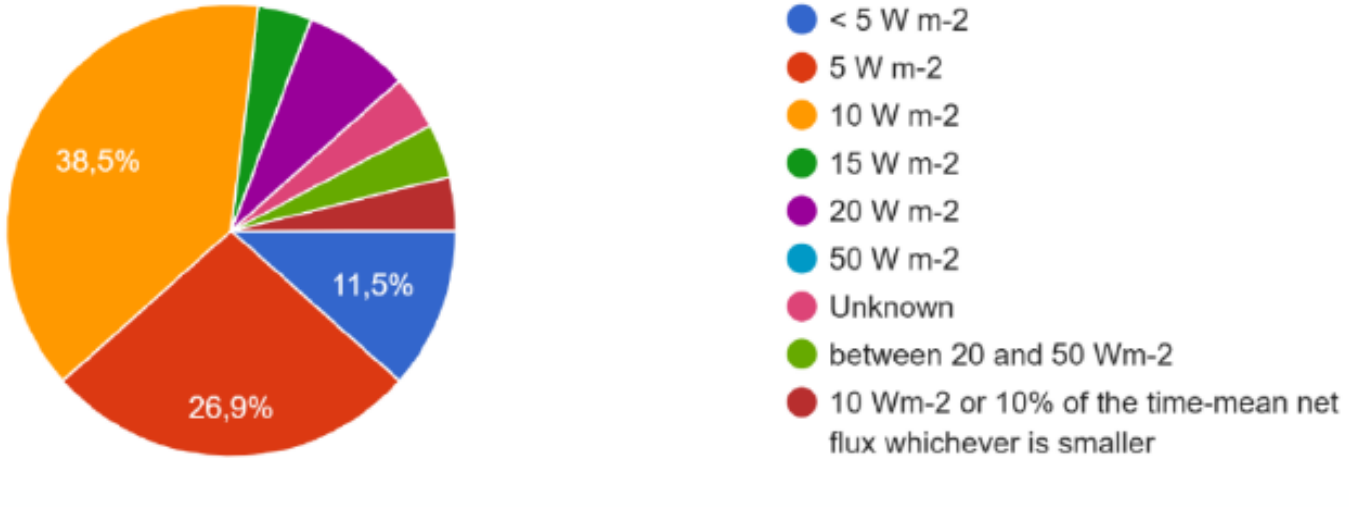
The requirements

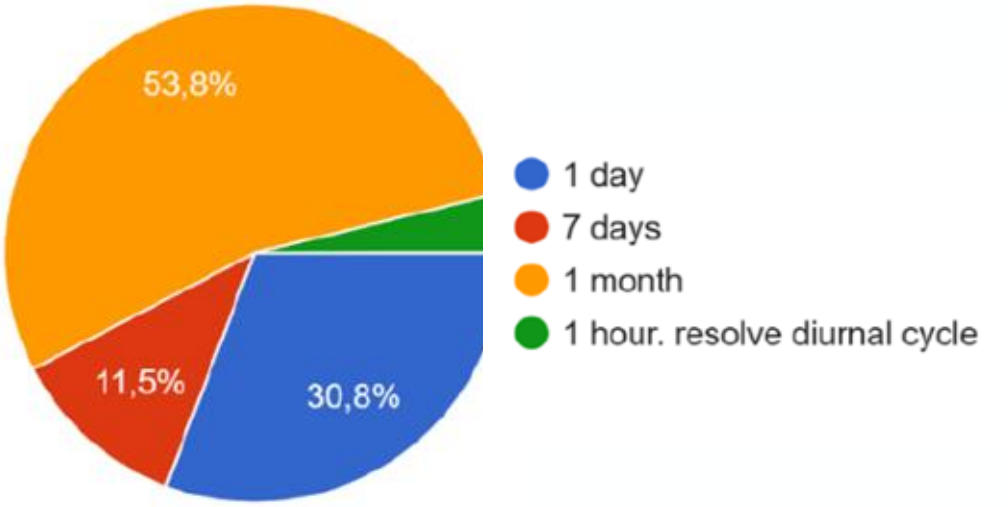
Three products will be delivered:

Global maps since 2011 till present at

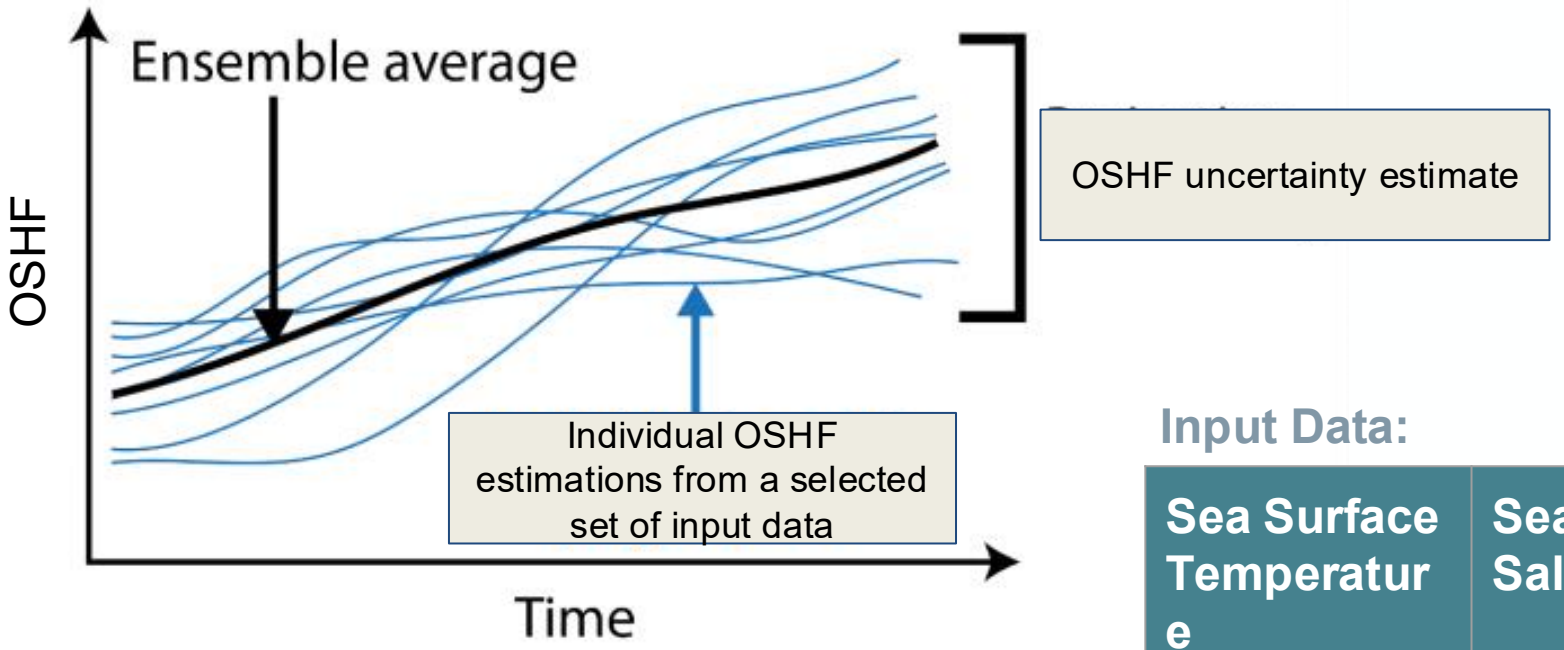
- 0.25ºx0.25º-daily resolution
- 0.25ºx0.25º-monthly resolution
- 1ºx1º-monthly resolution







The product



Input Data:

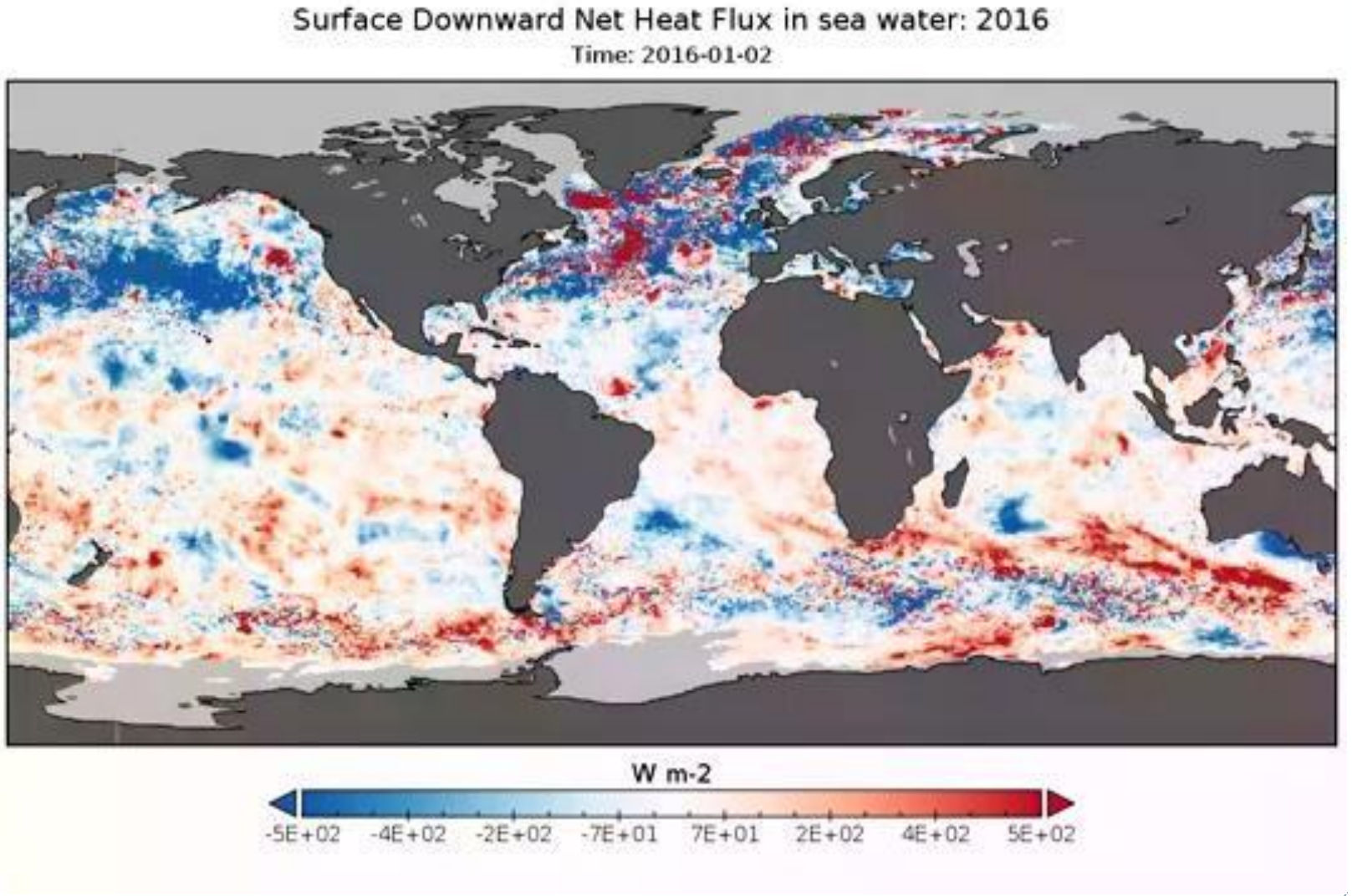
Sea Surface Temperature	Sea Surface Salinity	Sea Surface Currents	Mixed Layer Depth
CCI-SST	CCI-SSS	NEUROST	CORA
CMC-SST	SMOS BEC SSS	CMEMS ALLSAT	ARMOR3D
		OSCAR	

Preliminary results

The generation of the daily product at 0.25ºx0.25º is finished:

- Preliminary assessment on going
- Generation of 0.25ºx0.25º monthly and 1ºx1º monthly on going

Nest step: Validation



Next steps

KO	+03M	+06M	+09M	+12M	+15M	+18M	+21M	+24M	+27M	+30M	+33M	+36M

May 2025 May 2026 May 2027 May 2028

CRDP v1

ATBD v1

E3UB v1

CRDP v2

ADP v1

USER

SSD v1

PVR v1

CRDP v3

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