Extending Argo into marginal Seas

The extension of Argo into marginal seas, presently ongoing in some seas such as the Mediterranean Sea, introduces the following issues:

(1) Specific requirements of higher concentration of float density for adequate monitoring of T/S and biochemical parameters (smaller scales with respect to the world ocean).

(2) Operational challenges related to floats stranding and being stuck in shallow waters, to floats being recovered and redeployed, and to floats being picked up by seafarers (higher mortality).

(3) Political problems related to stranding on “less friendly” shores, and in general to floats passing in territorial waters and EEZs.

Extending Argo into marginal Seas

Two-way satellite communication (Iridium, Argos-3) can help the operational challenges listed in (2). Minimizing surfacing time decreases the probability of theft and drifting ashore. Modifiying the cycling and sampling characteristics interactively while floats are drifting allows optimal adaptive sampling and longer operating life.

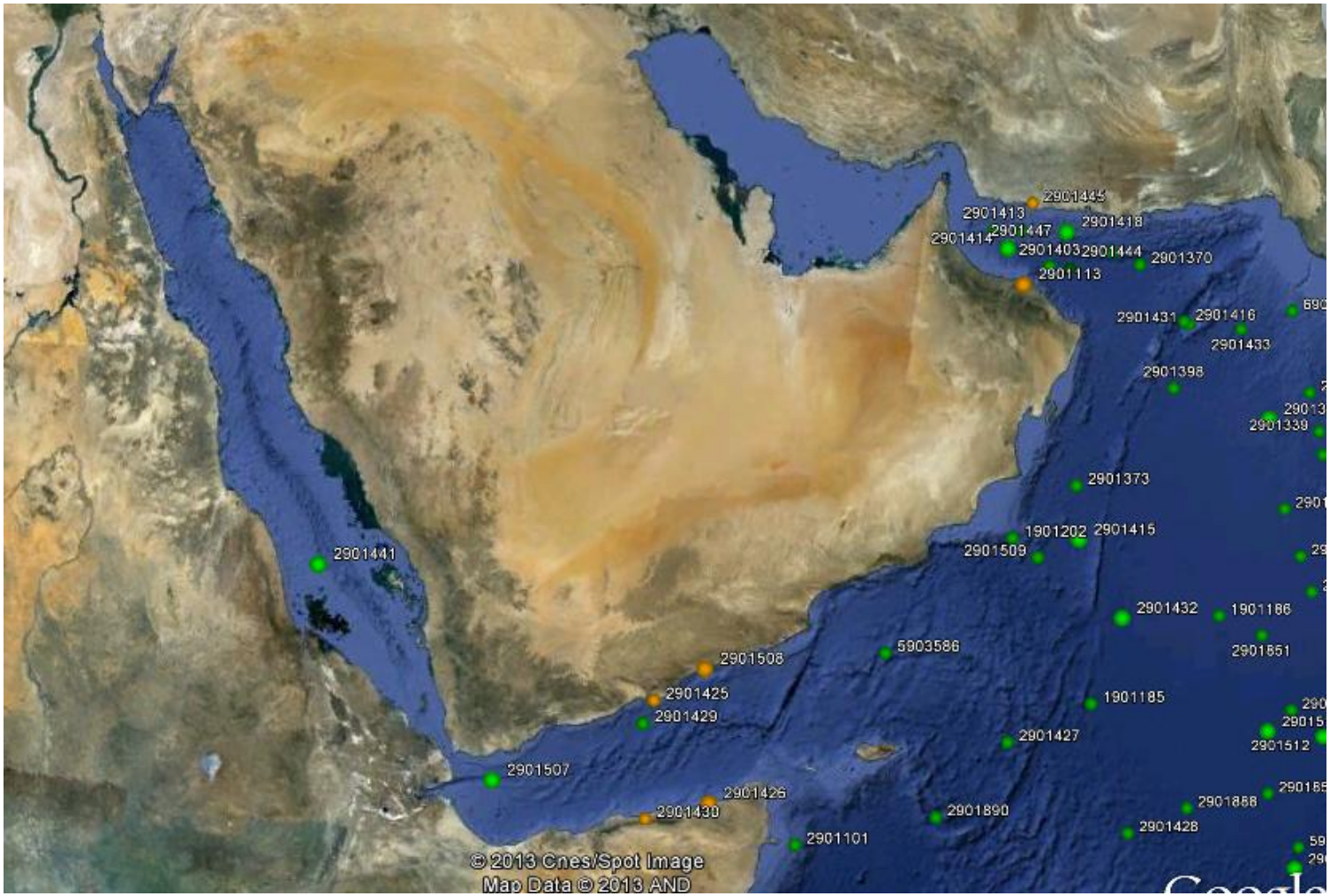
Solutions to (3) can be obtained through a more effective use of AIC, through regional collaboration, outreach and capacity building, and with the possible ratification of ad hoc laws.

Deployments of Arvor-L floats on June and September 2012 in the western Black Sea from Bulgarian R/V Akademik

Current Argo floats in Marginal Seas

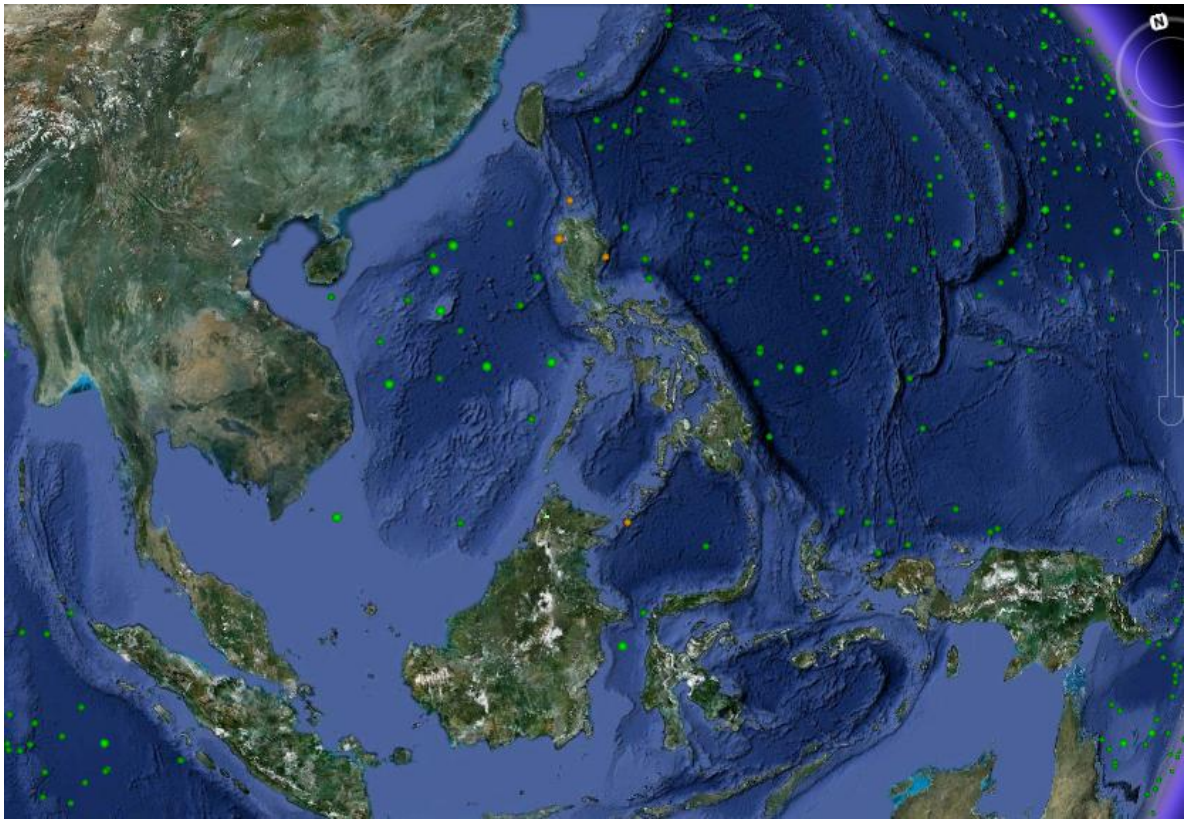
Gulf of Mexico, Carribean Sea and Gulf of California

Red Sea and Persian Gulf



Current Argo floats in Marginal Seas

Sea of Japan, east and south China Sea, Sea of Okhotsk, Indonesian Through Flow

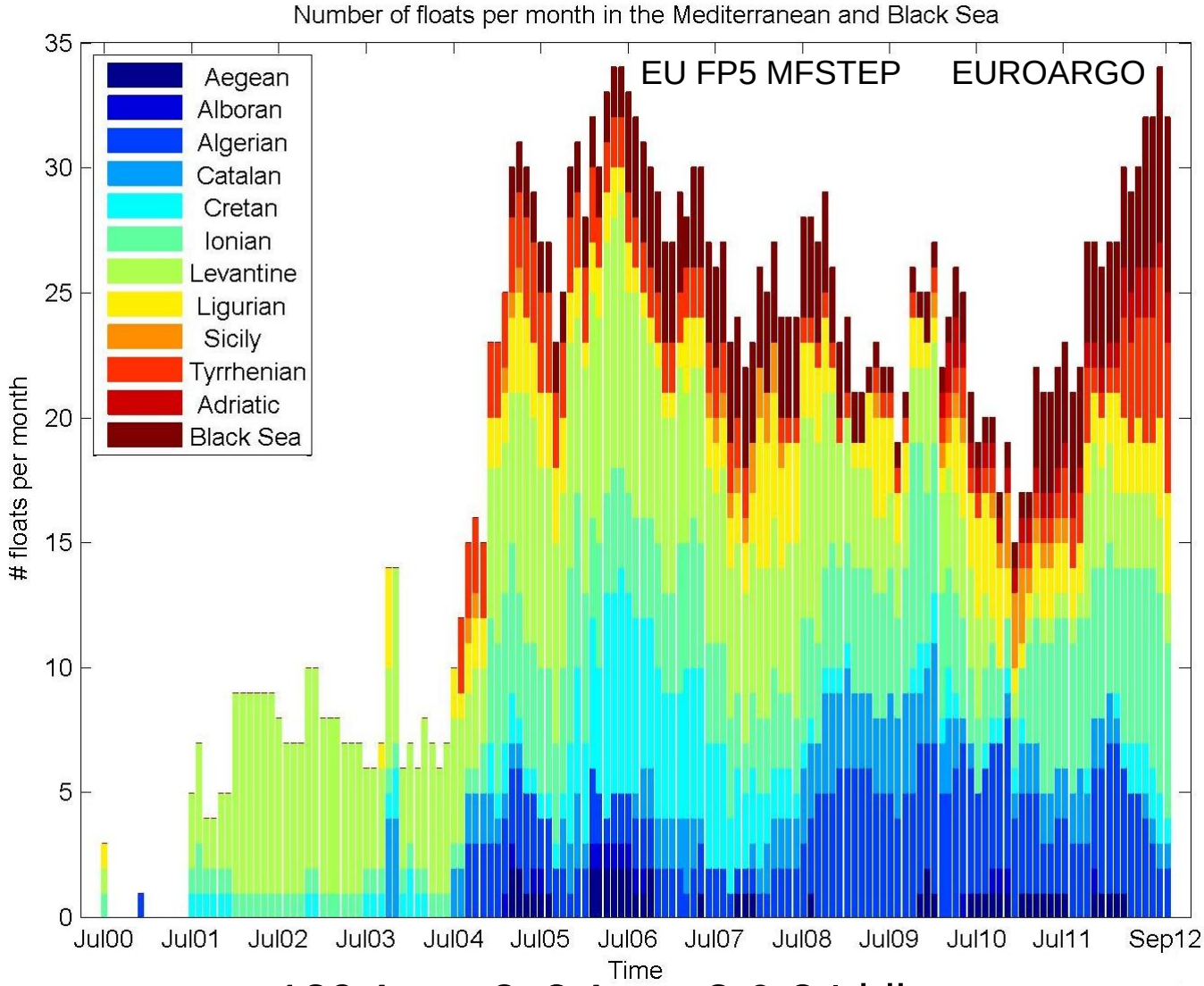


Current Argo floats in Marginal Seas

Mediterranean and Black Sea

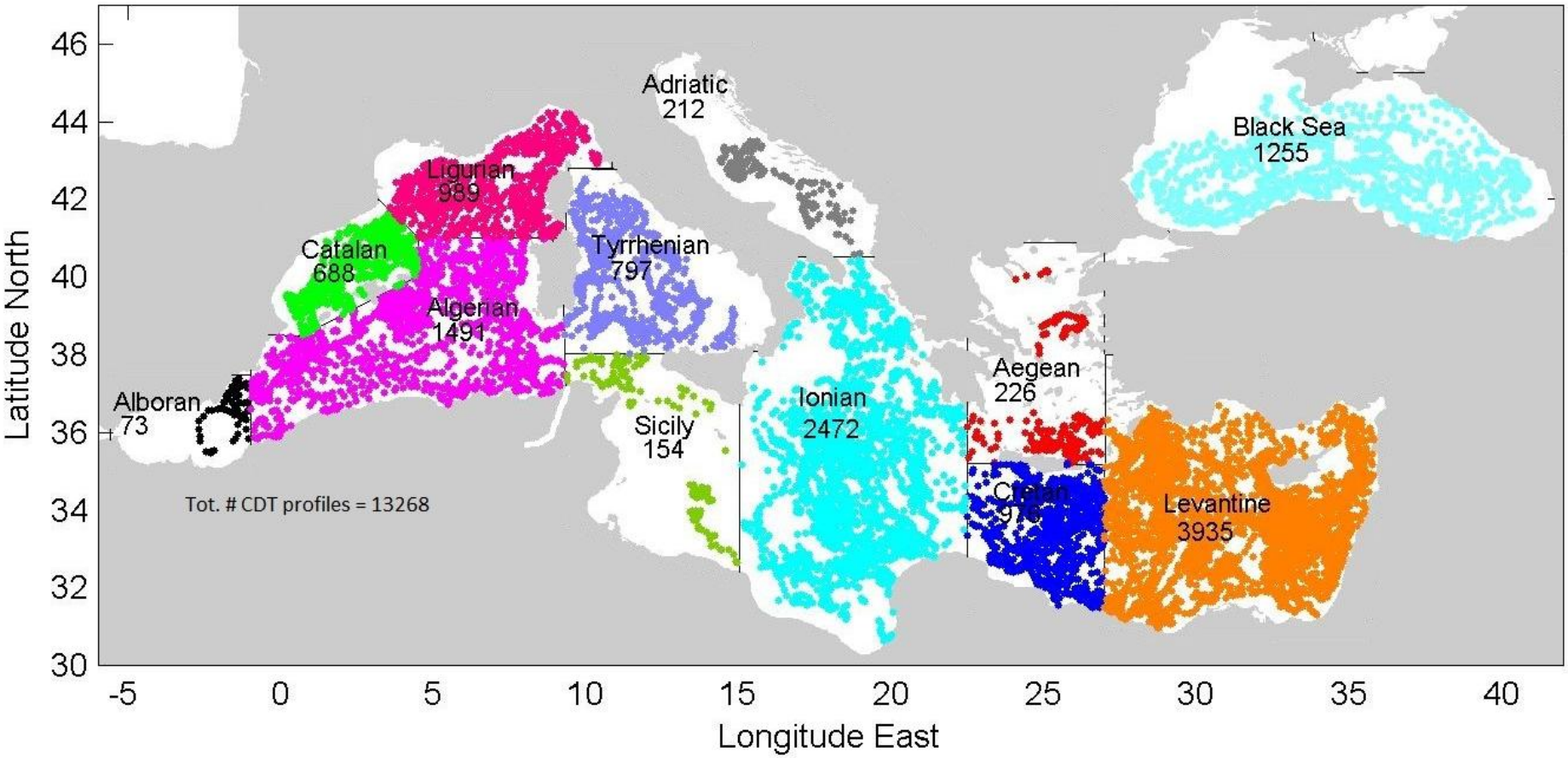
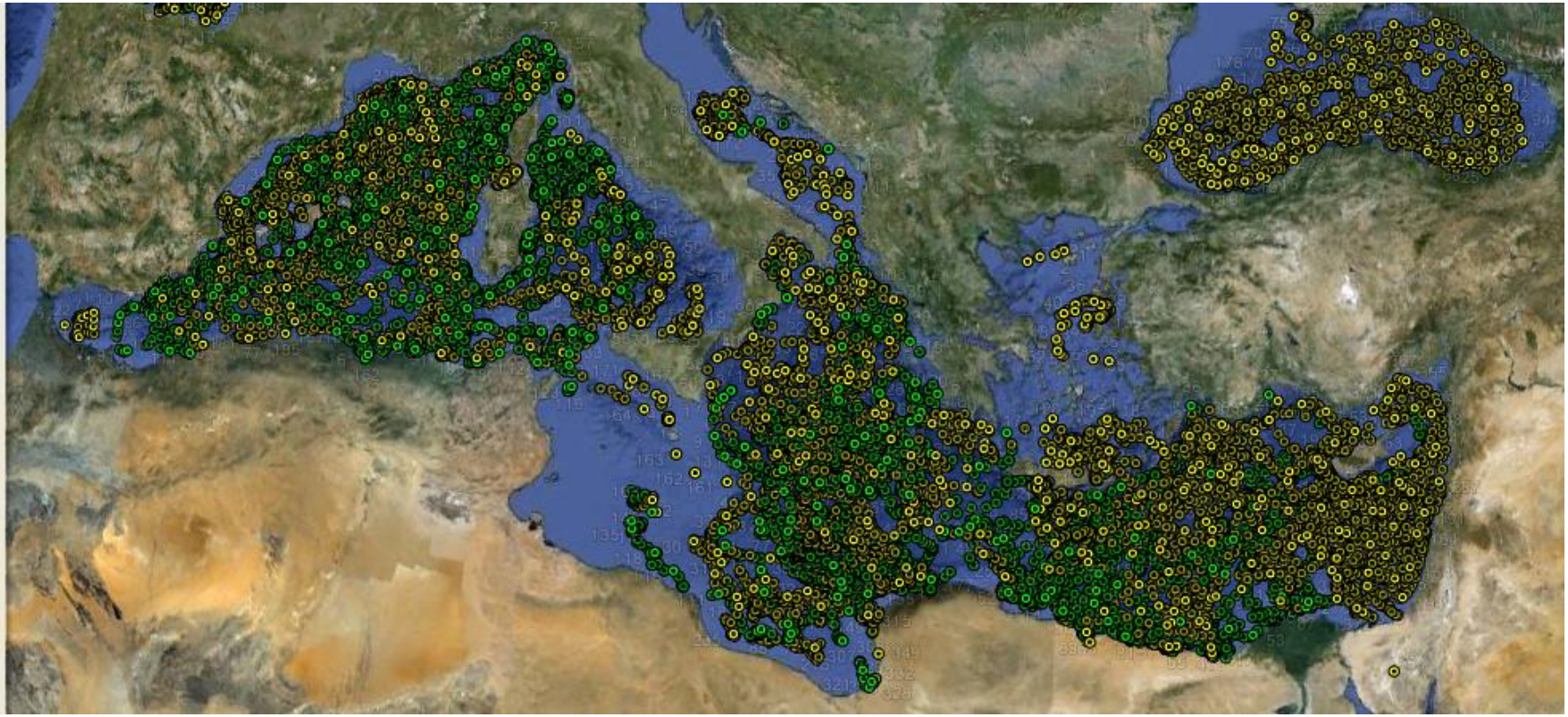
40 floats in Mediterranean, 7 in Black Sea, that is equal or larger than the generic density Argo x 2 (Med = 36, Black Sea =6)

Argo CTD profiles between Jun 2001 and Sep 2012 (149 floats)



139 Argos2, 2 Argos3 & 8 Iridium

Argo CTD profiles between June 2001 and September 2012



Argo float data between June 2001 and December 2012 (~15850 profiles)