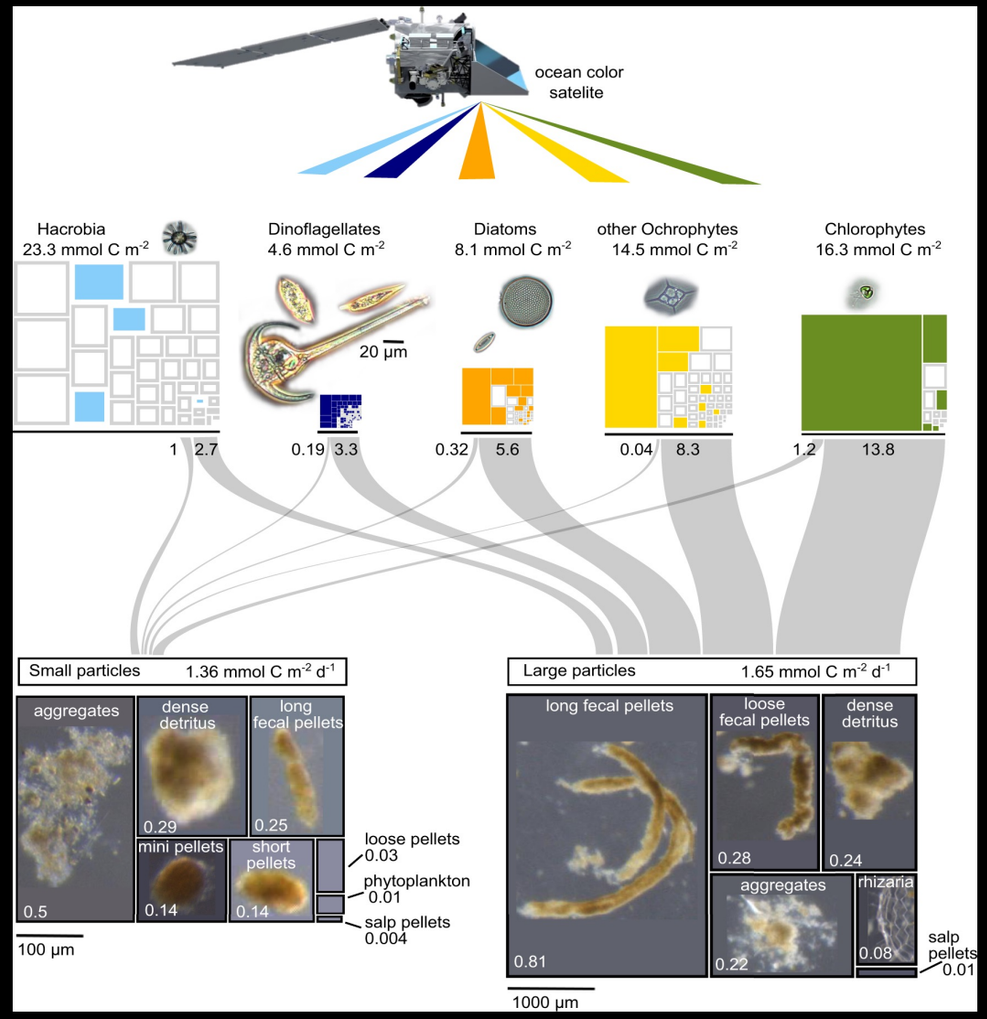
Tracing Carbon in the Ocean From the DNA of Sinking Particles

Despite technological advances it has been difficult to link phytoplankton with **carbon exported into the deep ocean**. GSFC's Ivona Cetinić, Aimee Neeley, et al., were able to **isolate microscopic biological waste and other sinking particles** in the ocean, then studied the DNA in it.

The combination of DNA sequencing, imaging, carbon measurement, and pigment analysis, created **a novel framework for including these direct observations into mechanistic models of the ocean's carbon cycle**. The work provides a pathway for integrating hyperspectral ocean color measurements with the power of DNA sequencing to **significantly improve ocean carbon export modeling**.

GSFC's PACE mission will be a super powerful tool to "see" the ocean's surface, but now -- thanks to these results – it will also be able to examine **processes happening below the surface and deep into the ocean twilight zone**.



*Durkin, C.A., **Cetinić, I.**, Estapa, M., Ljubešić, Z., Mucko, M., **Neeley, A.** and Omand, M. Tracing the path of carbon export in the ocean though DNA sequencing of individual sinking particles. ISME J (2022). https://doi.org/10.1038/s41396-022-01239-2*