World Ocean Atlas 2013

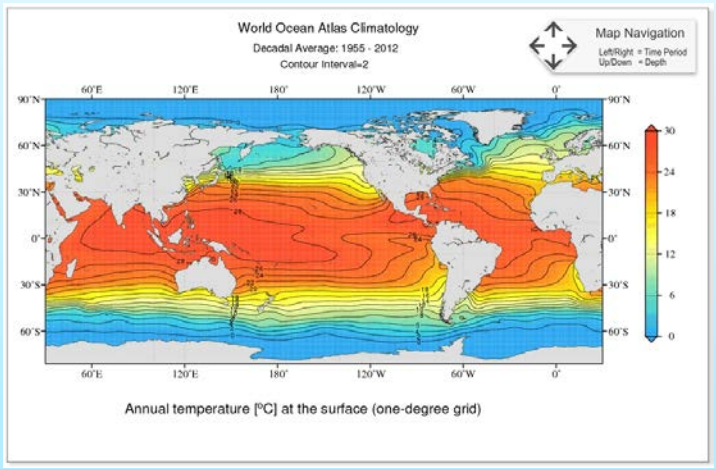
Providing scientists with the data they need to determine the influence of the ocean on the Earth's climate and environment

What is New in 2013?

World Ocean Atlas 2013 (WOA13) is a long-term set of objectively analyzed climatologies of temperature, salinity, oxygen, phosphate, silicate, and nitrate for annual, seasonal, and monthly periods for the World Ocean. It also includes associated statistical fields of observed oceanographic profile data from which the climatologies were computed.

The World Ocean Atlas 2013 continues forty years of effort in calculating the World Ocean properties begun by the Levitus climatologies in 1982. Produced by NOAA's National Oceanographic Data Center - Ocean Climate Laboratory, the World Ocean Atlas 2013 extends previous versions with higher vertical resolution for all variables. Instead of 33 levels from the surface to the sea floor (5500 m depth), there are now 102 levels. This higher vertical resolution can facilitate higher resolution models, more accurate quality control of observational data, and studies of processes such as mixed layer depth changes with reduced error.

In addition to increased vertical resolution, the 2013 version has both 1° and 1/4° horizontal resolution versions available for annual and seasonal temperature and salinity for six decades, as well as monthly for the decadal average.



Annual temperature [°C] at the surface (one-degree grid)

Why is the World Ocean Atlas important?

Without a baseline for comparison, it is not easy to understand how the ocean is changing. Many studies of changes in ocean heat and salt content, as well as studies of dissolved oxygen content have been executed using NODC's World Ocean Atlas climatological means worldwide. It is an indispensable tool for scientists in their pursuit of understanding the impact of the ocean on the Earth's climate and environment.

Facts About World Ocean Atlas 2013

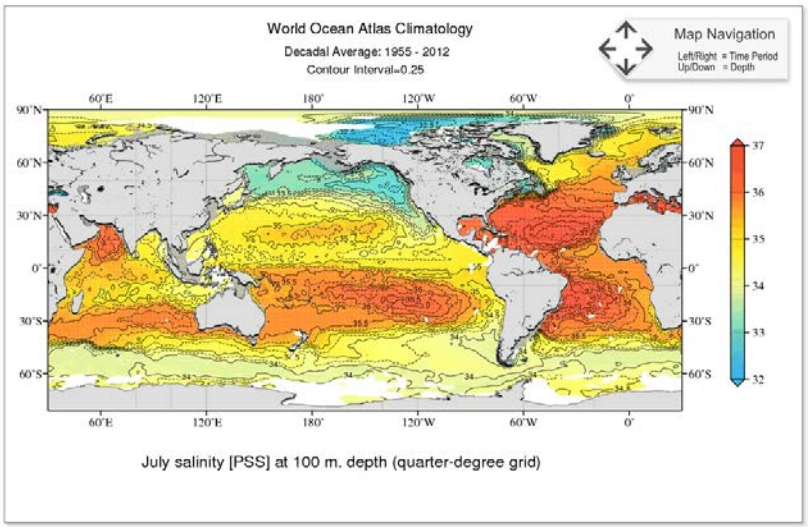
- World Ocean Atlas 2013 consists of a long-term set of climatologies (at annual, seasonal, and monthly periods) for temperature, salinity, oxygen, phosphate, silicate, and nitrate.

- The World Ocean Atlas 2013 extends previous versions with higher vertical and horizontal resolutions for all variables. Instead of 33 levels from the surface to 5500 meters deep, there are now 102 levels. The higher resolution can facilitate higher vertical resolution ocean circulation models, more accurate quality control of observational data, and studies of processes such as mixed layer depth changes, with reduced error.

- For temperature and salinity, a long-term mean has been computed for a specific time span of 1955-2012 as the average of six decadal climatologies, compared to the five decadal climatologies in the 2009 version. Also new in 2013, each of the six decadal climatologies are included in the Atlas to accommodate different research requirements in studying decade-to-decade variability.

- All provided oceanographic variables in WOA13 are available on a 1 degree latitude/longitude grid for the entire globe. The product also includes a ¼ degree grid resolution for temperature and salinity. The higher grid resolution better represents global and regional features such as the Gulf Stream, the salt tongue in the California Current system, and many other mesoscale structures and processes. The higher resolution grid is available for temperature and salinity in the annual and seasonal time periods for all six decades, as well as monthly for the decadal average.

- All climatological mean fields and associated statistics are available on the NODC website in NetCDF format as well as other common formats.



July salinity [PSS] at 100 m. depth (quarter-degree grid)