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■ NOAA ATLAS SERIES

The **World Ocean Database 2005**: NODC's latest major upgrade of this popular database contains 7.9 million temperature profiles, and 2.7million salinity profiles, as well as other profile data. It is the largest collection of quality-controlled global ocean profile data available internationally without restriction.

NA-60 Boyer, T. P., J. I. Antonov, H. Garcia, D. R. Johnson, R. A. Locarnini, A. V. Mishonov, M. T. Pitcher, O. K. Baranova, and I. Smolyar, 2006: **World Ocean Database 2005**, NOAA Atlas NESDIS 60, S. Levitus, Ed. U.S. Government Printing Office, Washington, D.C., 182 pp., DVD.

The **World Ocean Atlas 2005** is a set of objectively analyzed (1° grid) climatological fields of in situ temperature, salinity, dissolved oxygen, Apparent Oxygen Utilization (AOU), percent oxygen saturation, phosphate, silicate, and nitrate at standard depth levels for annual, seasonal, and monthly compositing periods for the World Ocean. It also includes associated statistical fields of observed oceanographic profile data interpolated to standard depth levels on both 1° and 5° grids.

NA-61 Locarnini, R A., A.V. Mishonov, J.I. Antonov, T.P. Boyer, and H.E. Garcia, 2006. **World Ocean Atlas 2005, Volume 1: Temperature**. S. Levitus, Ed. NOAA Atlas NESDIS 61, U.S. Government Printing Office, Washington, D.C., 182 pp.

NA-62 Antonov, J.I., R.A. Locarnini, T.P. Boyer, A.V. Mishonov, and H.E. Garcia, 2006. **World Ocean Atlas 2005, Volume 2: Salinity**. S. Levitus, Ed. NOAA Atlas NESDIS 62, U.S. Government Printing Office, Washington, D.C., 182 pp.

NA-63 Garcia, H.E., R.A. Locarnini, T.P. Boyer, and J.I. Antonov, 2006. **World Ocean Atlas 2005, Volume 3: Dissolved Oxygen, Apparent Oxygen Utilization, and Oxygen Saturation**. S. Levitus, Ed. NOAA Atlas NESDIS 63, U.S. Government Printing Office, Washington, D.C., 342 pp.

NA-64 Garcia, H.E., R.A. Locarnini, T.P. Boyer, and J.I. Antonov, 2006. **World Ocean Atlas 2005, Volume 4: Nutrients (phosphate, nitrate, silicate)**. S. Levitus, Ed. NOAA Atlas NESDIS 64, U.S. Government Printing Office, Washington, D.C., 396 pp.

The **World Ocean Database 2001**: The oceanographic databases described by this atlas series greatly expands on the *World Ocean Database 1998* (WOD98) product. We have expanded these earlier databases to include data from new instrument types such as profiling floats and new variables such as pCO₂ and tCO₂.

NA-42 Conkright, M.E., J.I. Antonov, O. Baranova, T.P. Boyer, H.E. Garcia, R. Gelfeld, D. Johnson, R.A. Locarnini, P.P. Murphy, T.D. O'Brien, I. Smolyar, C. Stephens, 2002. **WORLD OCEAN DATABASE 2001 Volume 1: Introduction**. NOAA Atlas NESDIS 42, U.S. Government Printing Office, Wash., D.C., 160pp.

NA-43 Boyer, T.P., M.E. Conkright, J.I. Antonov, O. Baranova, H.E. Garcia, R. Gelfeld, D. Johnson, R.A. Locarnini, P. P. Murphy, T. D. O'Brien, I. Smolyar, C. Stephens, 2002. **WORLD OCEAN DATABASE 2001 Volume 2: Temporal Distribution of Bathythermograph Profiles**. NOAA Atlas NESDIS 43, U.S. Government Printing Office, Wash., D.C., 119pp.

NA-44 Stephens, C., M.E. Conkright, J.I. Antonov, O. Baranova, T.P. Boyer, H.E. Garcia, R. Gelfeld, D. Johnson, R.A. Locarnini, P.P. Murphy, T.D. O'Brien, I. Smolyar, 2002. **WORLD OCEAN DATABASE 2001 Volume 3: Temporal Distribution of Conductivity/Salinity- Temperature-Depth (Pressure) Casts**. NOAA Atlas NESDIS 44, U.S. Government Printing Office, Wash., D.C., 47pp.

- NA-45 Locarnini, R.A., M.E. Conkright, J.I. Antonov, O. Baranova, T.P. Boyer, H.E. Garcia, R. Gelfeld, D. Johnson, P.P. Murphy, T. D. O'Brien, I. Smolyar, C. Stephens, 2002. **WORLD OCEAN DATABASE 2001 Volume 4: Temporal Distribution of Temperature, Salinity and Oxygen Profiles**. NOAA Atlas NESDIS 45, U.S. Government Printing Office, Wash., D.C., 332pp.
- NA-46 Conkright, M.E., T.P. Boyer, J.I. Antonov, O.K. Baranova, H.E. Garcia, R. Gelfeld, D. Johnson, R. A. Locarnini, P.P. Murphy, T.D. O'Brien, I. Smolyar, C. Stephens, 2002. **WORLD OCEAN DATABASE 2001 Volume 5: Temporal Distribution of Nutrient Profiles**. S. Levitus, Ed. NOAA Atlas NESDIS 46, U.S. Government Printing Office, Wash., D.C., 286pp.
- NA-47 Murphy, P.P., M.E. Conkright, T.P. Boyer, J.I. Antonov, O.K. Baranova, H.E. Garcia, R. Gelfeld, D. Johnson, R.A. Locarnini, T.D. O'Brien, I. Smolyar, C. Stephens, 2002. **WORLD OCEAN DATABASE 2001 Volume 6: Temporal Distribution of pH, Alkalinity, pCO₂ and tCO₂ Data**. S. Levitus, Ed. NOAA Atlas NESDIS 47, U.S. Government Printing Office, Wash., D.C., 235pp.
- NA-48 O'Brien, T.D., M.E. Conkright, T.P. Boyer, J.I. Antonov, O.K. Baranova, H.E. Garcia, R. Gelfeld, D. Johnson, R. A. Locarnini, P.P. Murphy, I. Smolyar, C. Stephens, 2002. **WORLD OCEAN DATABASE 2001 Volume 7: Temporal Distribution of Chlorophyll and Plankton Data**. S. Levitus, Ed. NOAA Atlas NESDIS 48, U.S. Government Printing Office, Wash., D.C., 219pp.

The **World Ocean Atlas 2001**: Oceanographic analyses described by this atlas series expand on earlier works, i.e. the *World Ocean Atlas 1998* (WOA98), *World Ocean Atlas 1994* (WOA94) and *Climatological Atlas of the World Ocean*. Previously published oceanographic objective analyses have proven to be of great utility to the oceanographic, climate research, and operational environmental forecasting communities. Such analyses are used as boundary and/or initial conditions in numerical ocean circulation models and atmosphere-ocean models, for verification of numerical simulations of the ocean, as a form of "sea truth" for satellite measurements such as altimetric observations of sea surface height, for computation of nutrient fluxes by Ekman transport, and for planning oceanographic expeditions.

- NA-49 Stephens, C., J.I. Antonov, T.P. Boyer, M.E. Conkright, R.A. Locarnini, T.D. O'Brien, H.E. Garcia, 2002. **World Ocean Atlas 2001, Volume 1: Temperature**. S. Levitus, Ed. NOAA Atlas NESDIS 49, U.S. Government Printing Office, Wash., D.C., 167 pp., CD-ROMs.
- NA-50 Boyer, T.P., C. Stephens, J.I. Antonov, M.E. Conkright, R.A. Locarnini, T.D. O'Brien, H.E. Garcia, 2002. **World Ocean Atlas 2001, Volume 2: Salinity**. S. Levitus, Ed. NOAA Atlas NESDIS 50, U.S. Government Printing Office, Wash., D.C., 165 pp., CD-ROMs.
- NA-51 Locarnini, R.A., T.D. O'Brien, H.E. Garcia, J.I. Antonov, T.P. Boyer, M.E. Conkright, C. Stephens, 2002. **World Ocean Atlas 2001, Volume 3: Oxygen**. S. Levitus, Ed. NOAA Atlas NESDIS 51, U.S. Government Printing Office, Wash., D.C., 286 pp.
- NA-52 Conkright, M.E., H.E. Garcia, T.D. O'Brien, R.A. Locarnini, T.P. Boyer, C. Stephens J.I. Antonov, 2002. **World Ocean Atlas 2001, Volume 4: Nutrients**. S. Levitus, Ed. NOAA Atlas NESDIS 52, U.S. Government Printing Office, Wash., D.C., 392 pp.
- NA-53 O'Brien, T.D., M.E. Conkright, T.P. Boyer, C. Stephens, J.I. Antonov, R.A. Locarnini, H.E. Garcia, 2002. **World Ocean Atlas 2001, Volume 5: Plankton**. S. Levitus, Ed. NOAA Atlas NESDIS 53, U.S. Government Printing Office, Wash., D.C., 95 pp.
- NA-54 Conkright, M.E., T.D. O'Brien, C. Stephens, R.A. Locarnini, H.E. Garcia, T.P. Boyer, J.I. Antonov, 2002. **World Ocean Atlas 2001, Volume 6: Chlorophyll**. S. Levitus, Ed. NOAA Atlas NESDIS 54, U.S. Government Printing Office, Wash., D.C., 46 pp.

The **World Ocean Database 1998** publications series display the spatial and temporal distribution of the data in the NODC WOD98 database. The WOD98 expands on WOA94 by including the additional variables nitrite, pH, alkalinity, chlorophyll, and plankton, as well as all available metadata and meteorology. The second part of this extension is the World Ocean Atlas 1998 (WOA98) which presents objectively analyzed fields of many of the variables in WOD98 (see next section). Each WOD98 publication is dedicated to a single parameter in the data set.

- NA-18 Levitus, S., T.P. Boyer, M.E. Conkright, T. O'Brien, J. Antonov, C. Stephens, L. Stathoplos, D. Johnson, R. Gelfeld, 1998. **World Ocean Database 1998: Volume 1: Introduction**. NOAA Atlas NESDIS 18, U.S. Government Printing Office, Wash., D.C., 346 pp.
- NA-19 Levitus, S., T.P. Boyer, M.E. Conkright, D. Johnson, T. O'Brien, J. Antonov, C. Stephens, R. Gelfeld, 1998: **World Ocean Database 1998 Volume 2: Temporal Distribution of Mechanical Bathythermograph Profiles**. NOAA Atlas NESDIS 19, U.S. Government Printing Office, Wash., D.C., 286 pp.
- NA-20 Boyer, T.P., J. Antonov, S. Levitus, M.E. Conkright, T. O'Brien, C. Stephens, D. Johnson, R. Gelfeld, 1998. **WORLD OCEAN DATABASE 1998 Volume 3: Temporal Distribution of Expendable Bathythermograph Profiles**. NOAA Atlas NESDIS 20, U.S. Government Printing Office, Wash., D.C., 170 pp.
- NA-21 Boyer, T.P., M.E. Conkright, S. Levitus, C. Stephens, T. O'Brien, D. Johnson, R. Gelfeld, 1998. **WORLD OCEAN DATABASE 1998 Volume 4: Temporal Distribution of Conductivity/Salinity-Temperature- Depth (Pressure) Stations**. NOAA Atlas NESDIS 21, U.S. Government Printing Office, Wash., D.C., 160 pp.
- NA-22 Boyer, T.P., M.E. Conkright, S. Levitus, D. Johnson, J. Antonov, T. O'Brien, C. Stephens, R. Gelfeld, 1998. **WORLD OCEAN DATABASE 1998 Volume 5: Temporal Distribution of Station Data Temperature and Salinity Profiles**. NOAA Atlas NESDIS 22, U.S. Government Printing Office, Wash., D.C., 108 pp. (*Out or print. Copier reproductions only*)
- NA-23 Conkright, M.E., T.P. Boyer, S. Levitus, D. Johnson, T. O'Brien, C. Stephens, R. Gelfeld, 1998. **WORLD OCEAN DATABASE 1998 Volume 6: Temporal Distribution of Station Data Nutrient Profiles**. NOAA Atlas NESDIS 23, U.S. Government Printing Office, Wash., D.C., 296 pp.
- NA-24 O'Brien, T., M.E. Conkright, T.P. Boyer, S. Levitus, D. Johnson, C. Stephens, R. Gelfeld, 1998. **WORLD OCEAN DATABASE 1998 Volume 7: Temporal Distribution of Station Data Oxygen, pH, and Alkalinity Profiles**. NOAA Atlas NESDIS U.S. Government Printing Office, Wash., D.C., 235 pp.
- NA-25 Conkright, M.E., T. O'Brien, L. Stathoplos, C. Stephens, T.P. Boyer, D. Johnson, S. Levitus, R. Gelfeld, 1998. **WORLD OCEAN DATABASE 1998 Volume 8: Temporal Distribution of Station Data Chlorophyll and Plankton Profiles**. NOAA Atlas NESDIS 25, U.S. Government Printing Office, Wash., D.C., 129 pp.

The **World Ocean Atlas 1998** publication series presents global, objectively analyzed fields of major ocean parameters on a one-degree latitude-longitude grid for selected standard depth levels from the sea surface to 5500 m depth. These atlases present analyses of temperature, salinity, oxygen, phosphate, nitrate, and silicate data, and expand on the previous 1994 atlas set by including the additional variables nitrite, pH, alkalinity, chlorophyll, and plankton, as well as all available metadata and meteorology. The WOA1998 was produced from the NODC's data holdings as of the first quarter of 1994, as well as some of the data submitted to NODC since 1994. In addition, data gathered as a result of the IOC/IODE GODAR project, the Global Ocean Database project and Global Temperature Salinity Profile Project (GTSP) project, were included in this study.

- NA-27 Antonov, J., S. Levitus, T.P. Boyer, M. Conkright, T. O'Brien, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 1: Temperature of the Atlantic Ocean**. NOAA Atlas NESDIS 27. U.S. Government Printing Office, Wash., D.C., 166 pp.
- NA-28 Antonov, J., S. Levitus, T.P. Boyer, M. Conkright, T. O'Brien, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 2: Temperature of the Pacific Ocean**. NOAA Atlas NESDIS 28. U.S. Government Printing Office, Wash., D.C., 166 pp.
- NA-29 Antonov, J., S. Levitus, T.P. Boyer, M. Conkright, T. O'Brien, C. Stephens, B. Trotsenko, 1998. **World Ocean Atlas 1998 Vol. 3: Temperature of the Indian Ocean**. NOAA Atlas NESDIS 29. U.S. Government Printing Office, Wash., D.C., 166 pp.
- NA-30 Boyer, T.P., S. Levitus, J. Antonov, M. Conkright, T. O'Brien, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 4: Salinity of the Atlantic Ocean**. NOAA Atlas NESDIS 30. U.S. Government Printing Office, Wash., D.C., 166 pp.
- NA-31 Boyer, T.P., S. Levitus, J. Antonov, M. Conkright, T. O'Brien, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 5: Salinity of the Pacific Ocean**. NOAA Atlas NESDIS 31. U.S. Government Printing Office, Wash., D.C., 166 pp.
- NA-32 Boyer, T.P., S. Levitus, J. Antonov, M. Conkright, T. O'Brien, C. Stephens, B. Trotsenko, 1998. **World Ocean Atlas 1998 Vol. 6: Salinity of the Indian Ocean**. NOAA Atlas NESDIS 32. U.S. Government Printing Office, Wash., D.C., 166 pp.
- NA-33 O'Brien, T., S. Levitus, T.P. Boyer, M. Conkright, J. Antonov, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 1: Oxygen of the Atlantic Ocean**. NOAA Atlas NESDIS 33. U.S. Government Printing Office, Wash., D.C., 234 pp.
- NA-34 O'Brien, T., S. Levitus, T.P. Boyer, M. Conkright, J. Antonov, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 2: Oxygen of the Pacific Ocean**. NOAA Atlas NESDIS 34. U.S. Government Printing Office, Wash., D.C., 234 pp.
- NA-35 O'Brien, T., S. Levitus, T.P. Boyer, M. Conkright, J. Antonov, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 3: Oxygen of the Indian Ocean**. NOAA Atlas NESDIS 35. U.S. Government Printing Office, Wash., D.C., 234 pp.
- NA-36 Conkright, M., T. O'Brien, S. Levitus, T.P. Boyer, J. Antonov, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 10: Nutrients and Chlorophyll of the Atlantic Ocean**. NOAA Atlas NESDIS 36. U.S. Government Printing Office, Wash., D.C., 245 pp.
- NA-37 Conkright, M.E., T. O'Brien, S. Levitus, T.P. Boyer, J. Antonov, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 11: Nutrients and Chlorophyll of the Pacific Ocean**. NOAA Atlas NESDIS 37. U.S. Government Printing Office, Wash., D.C., 245 pp.
- NA-38 Conkright, M.E., T. O'Brien, S. Levitus, T.P. Boyer, J. Antonov, C. Stephens, 1998. **World Ocean Atlas 1998 Vol. 12: Nutrients and Chlorophyll of the Indian Ocean**. NOAA Atlas NESDIS 38. U.S. Government Printing Office, Wash., D.C., 245 pp. (*Out of print. Copier reproductions only*)

International Ocean Atlas and Information Series

- NA-39 Matishov, G. et al (Murmansk Marine Biological Institute), and I. Smolyar, et al (NODC), 2000. ***Biological Atlas of the Arctic Seas 2000: Plankton of the Barents and Kara Seas***. NOAA Atlas NESDIS 39. U.S. Government Printing Office, Wash., D.C., 348 pp.
- NA-41 Sapozhnikov, V., A. Gruzevich, V. Zubarevich, N. Arzhanova, N. Mordasova, I. Nalyotova, N. Torgunova, Y. Mikhailovskiy, I. Smolyar, 2001. ***Hydrochemical Atlas of the Sea of Okhotsk 2001***. Eds. V. Sapozhnikov and S. Levitus, World Data Center-A for Oceanography, International Ocean Atlas and Information Series, Vol. 3. NOAA Atlas NESDIS 41, U.S. Government Printing Office, Wash., D.C., 155 pp.
- NA-55 Levitus, S. and Y. Sychev, 2002. **Atlas of temperature-salinity frequency distributions: North Atlantic**. International Ocean Atlas and Information Series, Vol. 4. NOAA Atlas NESDIS 55, U.S. Government Printing Office, Wash., D.C., CD-ROMs, 22 pp.
- NA-56 Mikhailov, N.N., E.D. Vyazilov, V.I. Lomonov, N.S. Studyonov, M.Z. Shairmardonov, 2002. **Russian Marine Expeditionary Investigations of the World Ocean**. R. Tatusko and S. Levitus (eds.), World Data Center for Oceanography, International Ocean Atlas and Information Series, Vol. 5, NOAA Atlas NESDIS 56, U.S. Government Printing Office, Washington, D.C., 184 pp.
- NA-57 Berger, V. Ja, A.D. Naumov, N. V. Usov, M. A. Zubaha, I. Smolyar, R. Tatusko, S. Levitus, 2003. **36-year time series (1963-1998) of zooplankton, temperature, and salinity in the White Sea**. World Data Center for Oceanography-Silver Spring, International Ocean Atlas and Information Series, Vol. 7. NOAA Atlas NESDIS 57, U.S. Government Printing Office, Wash., D.C., CD-ROM, 362 pp.
- NA-58 Matishov, G., A. Zuyev, V. Golubev, N. Adrov, S. Timofeev, O.Karamusko, L. Pavlova, O. Fadyakin, A. Buzan, A. Braunstein, D. Moiseev, I. Smolyar, R. Locarnini, R. Tatusko, T. Boyer, S. Levitus, 2004. **Climatic Atlas of the Arctic Seas 2004: Part I. Database of the Barents, Kara, Laptev, and White Seas - Oceanography and Marine Biology**. World Data Center for Oceanography-Silver Spring, International Ocean Atlas and Information Series, Vol. 9. NOAA Atlas NESDIS 58, U.S. Government Printing Office, Wash., D.C., DVD, 148 pp.
- NA-59 Matishov, G., D. Matishov, Yu. Gargopa, L. Dashkevich, S. Berdnikov, O. Baranova, I. Smolyar, 2006. **Climatic Atlas of the Sea of Azov 2006**. NOAA Atlas NESDIS 59, World Data Center for Oceanography-Silver Spring, International Ocean Atlas and Information Series, Volume 10, U.S. Government Printing Office, Washington, D.C., 105 pp, CD-ROM

The Atlas of Surface Marine Data 1994 (ASMD94) is an atlas series depicting the seasonal and yearly variations of the surface marine atmosphere over the global oceans. Quantities include directly observed parameters (e.g., sea surface temperature, air temperature, sea level pressure, humidity, cloudiness, winds), a full set of heat and momentum fluxes (short and long wave radiation, latent and sensible heat flux, wind stress), fresh water fluxes (evaporation, precipitation, buoyancy flux), and a variety of derived quantities (e.g., air density, virtual temperature, stability parameter). All quantities shown in the atlas series are derived from individual ship, buoy, and other marine observations found in the Comprehensive Ocean Atmosphere Data Set (COADS) Release 1 (and an interim release). The seasonal plots depicted in the atlas were computed from monthly mean data. Monthly mean climatologies covering 1945-1989 and monthly mean anomalies were computed on a 1-degree latitude by 1-degree longitude grid and objectively analyzed. The grid and objective analysis are basically identical to that used in the World Ocean Atlas 1994.

- NA-6 Da Silva, A., C. Young, and S. Levitus, 1994. **Atlas of Surface Marine Data 1994. Vol. 1: Algorithms and Procedures.** NOAA Atlas NESDIS 6. U.S. Government Printing Office, Wash., D.C., 83 pp.
- NA-7 Da Silva, A., C. Young, and S. Levitus, 1994. **Atlas of Surface Marine Data 1994. Vol. 2: Anomalies of Directly Observed Quantities.** NOAA Atlas NESDIS 7, U.S. Government Printing Office, Wash., D.C., 416 pp. (*Out or print. Copier reproductions only*)
- NA-8 Da Silva, A., C. Young, and S. Levitus, 1994. **Atlas of Surface Marine Data 1994. Vol. 3: Anomalies of Fluxes of Heat and Momentum.** NOAA Atlas NESDIS 8. U.S. Government Printing Office, Wash., D.C., 413 pp. (*Out or print. Copier reproductions only*)
- NA-9 Da Silva, A., C. Young, and S. Levitus, 1994. **Atlas of Surface Marine Data 1994. Vol. 4: Anomalies of Fresh Water Fluxes.** NOAA Atlas NESDIS 9. U.S. Government Printing Office, Wash., D.C., 308 pp.
- NA-10 Da Silva, A., C. Young, and S. Levitus, 1994. **Atlas of Surface Marine Data 1994. Vol. 5: Miscellaneous Derived Quantities.** NOAA Atlas NESDIS 10. U.S. Government Printing Office, Wash., D.C., 416 pp.
- NA-12 Da Silva, A., C. Young, and S. Levitus, 1997. **Atlas of Surface Marine Data 1994, Vol. 6: Heat Flux Sensitivity to Sea Surface Temperature.** NOAA Atlas NESDIS 12. U.S. Government Printing Office, Wash., D.C., pp. 103.
- NA-13 Da Silva, A., C. Young, and S. Levitus, 1997. **Atlas of Surface Marine Data 1994. Suppl. A: Anomalies of Directly Observed Quantities and Surface Marine Fluxes for 1990-1993.** NOAA Atlas NESDIS 13. U.S. Government Printing Office, Wash., D.C., 128 pp.
- NA-17 Da Silva, A., C. Young, and S. Levitus, 1997. **Atlas of Surface Marine Data 1994, Suppl. B: Procedures for $\frac{1}{2} \times \frac{1}{2}$ data set.** NOAA Atlas NESDIS 17. U.S. Government Printing Office, Wash., D.C., 128 pp.

Miscellaneous Atlases

- NA-11 Boyer, T.P., and S. Levitus, 1997. **Objective Analyses of Temperature and Salinity for the World Ocean on a $1/4^\circ$ Grid.** NOAA/NESDIS Atlas 11. U.S. Government Printing Office, Wash., D.C., 62 pp.
- NA-14 Monterey, G.I., and Levitus, S., 1997. **Seasonal Variability of Mixed Layer Depth for the World Ocean.** NOAA NESDIS Atlas 14, U.S. Government Printing Office, Wash., D.C., 5 pp. 87 figs.
- NA-15 Levitus, S., G.I. Monterey, and T. Boyer, 1997. **Seasonal Variability of Dynamic Height and its Fourier Analysis.** NOAA NESDIS Atlas 15, U.S. Government Printing Office, Wash., D.C., 9 pp. and 38 figs.
- NA-16 Levitus, S., and J. Antonov, 1997. **Climatological and Interannual Variability of Temperature, Heat Storage, and Rate of Heat Storage in the Upper Ocean,** NOAA NESDIS Atlas 16. U.S. Government Printing Office, Wash., D.C., 6 pp., 186 figs.

- NA-26 Levitus, S., Smolyar, I., Matishov, G., Zhev, A., Golubev, V., Slobodin, V., 1998. *Climatic Atlas of the Barents Sea 1998: Temperature, Salinity, Oxygen*. NOAA Atlas NESDIS 26. U.S. Government Printing Office, Wash., D.C., 144 pp.
- NA-40 Levitus, S., C. Stevens, J. Antonov, T. Boyer, 2000. *Yearly and Year-Season Upper Ocean Temperature Anomaly Fields, 1948-1998*. NOAA Atlas NESDIS 26. U.S. Government Printing Office, Wash., D.C., 24 pp.

■ NOAA TECHNICAL REPORT SERIES

- TR-79 Conkright, M.E., T. Boyer, and S. Levitus 1994. *Quality Control and Processing of Historical Oceanographic Nutrient Data*. NOAA Technical Report NESDIS 79, National Oceanographic Data Center, Wash., D.C., 75 pp.
- TR-81 Boyer, T. and S. Levitus, 1994. *Quality Control of Oxygen, Temperature and Salinity Data*. NOAA Technical Report No. 81, National Oceanographic Data Center, Wash., D.C., 65 pp.
- TR-87 NOAA, 1997. *Proceedings of the International Workshop on Oceanographic Biological and Chemical data Management*. NOAA Tech. Report NESDIS 87, Washington, D.C., 224 pp.
- TR-117 Levitus, S., S. Sato, C. Maillard, N. Mikhailov, P. Caldwell, and H. Dooley, 2005: **Building Ocean Profile-Plankton Databases for Climate and Ecosystem Research**, NOAA Technical Report NESDIS 117, U.S. Government Printing Office, Wash., D.C., 29 pp.

■ NODC INTERNAL REPORTS

- IR-14 Conkright, M.E., S. Levitus, T. O'Brien, T.P. Boyer, C. Stephens, D. Johnson, L. Stathoplos, O. Baranova, J. Antonov, R. Gelfeld, J. Burney, J. Rochester, C. Forgy, 1999. *World Ocean Database 1998. CD-ROM Data Set Documentation, Version 2.0*. National Oceanographic Data Center Internal Report 14. 121 pp.
- IR-15 Ocean Climate Laboratory, 1999. *World Ocean Atlas 1998 CD-ROM Documentation. Version 1.0*. National Oceanographic Data Center Internal Report 15. 16 pp.
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