CTD cast data from 45 R/V Alpha Helix and R/V Wecoma Long-Term Observation Program (LTOP) cruises to the Coastal Gulf of Alaska from 1997-2004 as part of the U.S. GLOBEC program (NEP project)

Website: https://www.bco-dmo.org/dataset/2470
Data Type: Cruise Results
Version: 1
Version Date: 2006-12-04

Project
» U.S. GLOBEC Northeast Pacific (NEP)

Program
» U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Contributors	Affiliation	Role
Weingartner, Thomas J.	University of Alaska Fairbanks (UAF)	Principal Investigator
Allison, Dicky	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
CTD cast data from 45 R/V Alpha Helix and R/V Wecoma Long-Term Observation Program (LTOP) cruises to the Coastal Gulf of Alaska from 1997-2004 as part of the U.S. GLOBEC program (NEP project)

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- Program Information
- Funding

Coverage

Spatial Extent: **N**:61.2601 **E**:-143.6689 **S**:57.7995 **W**:-150.9358
Temporal Extent: 1997-10-10 - 2004-12-09

Dataset Description

CTD datasets from the CGOA LTOP project

Contributor: Tom Weingartner

Acquisition Description

Progress Report: April 1999
Project Title: The Gulf of Alaska GLOBEC LTOP Program
Investigators: Thomas Weingartner (PI), A. J. Paul (PI), Ken Coyle (PI), Lew Haldorson (PI), Dean Stockwell (PI), Terry Whitledge (PI), Jennifer Boldt, Seth Danielson, Alexei Pinchuk, and Amy Ruehs (All at University of Alaska), and Tom Royer (PI; Old Dominion Univ.)

The LTOP monitoring in the Gulf of Alaska completed its first year of sampling which included week-long cruises using the Alpha Helix in October 1997, and March, April, May, July, October, and December 1998. Sampling on all cruises included occupying stations along the Seward Line, which extends from the inner shelf to the edge of the continental slope. At each station CTD profiles and water samples for nutrients, chlorophyll and zooplankton nauplii were collected. Additional sampling includes MOCNESS tows at each of these stations with the tow depths chosen on the basis of backscatter from a 4- frequency, split-beam towed transducer array. The MOCNESS samples allow verification of the acoustical results and provide samples for species identification and additional analyses. The transducer is towed continually along the line and in conjunction with underway measurements of sea surface temperature, salinity, fluorescence and ADCP data provide data at very high spatial resolution. This standard sampling was supplemented during the July and October cruises with coincidental trawls from a charterd fishing vessel and surface gill nets from the Alpha Helix. We have also provided samples and/or sampling opportunities to other scientists for measurements of stable isotope composition of biota, dissolved carbon, bacteria, microzooplankton, seabird and marine mammal, and circulation.

The data suggest that the shelf is organized into three distinct dynamic and biological regimes. The innermost portion of the shelf consists of the Alaska Coastal Current, which is a high speed, persistent, dilute coastal current which is generally low in nutrients and chlorophyll. The inner shelf is segregated from the midshelf region by a salinity front. Nutrient concentrations, chlorophyll biomass, zooplankton, fish and seabird abundances appear to be consistently high just offshore of this front. However, it is not clear if this region of locally high biological productivity is associated with frontal processes or with the locally complicated bathymetry and coastline curvature. Over the midshelf region the circulation is weak and variable and biological abundances appear to be patchy in time and space. This region of the shelf often contains eddies having a diamter of ~50km. A third regime straddles the shelfbreak salinity front. Flow here is also swift (and often reflects shoreward movement of the Alaskan Stream) and nutrient, chlorophyll and zooplankton conentrations tend to be relatively high. Fish, seabird, and mammal abundances are also relatively high in this region. There is some suggestion that the vertebrate community structure here differs from that of the inner shelf.

Time permitting we augment the sampling along the Seward Line with additional alongshore transects. While these are relatively few in number they suggest that biological production is highly patchy owing perhaps to very complicated bathymetry.

The first year of sampling occurred during an El Nino year and the physical effects of this phenomenom included unusually warm (~1-2C above normal) and fresh (.15 psu) waters over the uper 200 m of the shelf. By summer, deep water temperatures were returning to normal and deep water salinities were above normal. The reason for the latter is not known but it implies either abnormally high upwelling rates or changes in the the composition of the offshore water masses that annually flow inshore. Higher salinities imply higher nutrient concentrations. However, it is not clear that changes in deep nutrient concentrations in the deep water on the shelf affect surface production.

Additional information about the GLOBEC LTOP in the Coastal Gulf of Alaska, including plots of cruise results, station locations, etc., can be obtained at: http://www.ims.uaf.edu/GLOBEC/

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Parameters

Parameter	Description	Units
year	year, e.g. 1997	no units
ship	name of the ship or vessel (See also platform.)	no units
cruiseid	Cruise identifier, e.g. HX217 represents R/V Alpha Helix cruise number 217.	no units
station	consecutive station number	no units
stn_id	station identification code	no units
lat	latitude, in decimal degrees, north is positive	decimal degrees
lon	longitude, in decimal degrees, east is positive	decimal degrees
depth_w	water depth, in meters	meters
press_min	minimum pressure during cast	millibars
press_max	maximum pressure during cast	millibars
month_gmt	Month of year, GMT time , i.e. 01-12.	no units
day_gmt	Day, GMT time e.g. 22.	no units
time_gmt	time of day, reported in GMT time, 24 hour clock	hhmm
press	pressure at ctd sampling point	millibars
temp	water temperature, as observed by a CTD unit	degrees Celsius
salinity	salinity, calculated from the CTD 'primary sensors' of conductivity and temperature.	Practical salinity scale, dimensionless
sigma_t	sigma-theta density	kilograms per meters cubed - 1000
dyn_height	dynamic height, referenced to surface	meters
fluor	fluorescence	?
ac3_fluor	fluorescence	?
trans	light transmission	volts
PAR	downwell Photosynthetically Available Radiation	uE/cm2/sec
depth_to_bottom	depth from instrument to bottom	meters
interp_code	?	?

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Instruments

Dataset-specific Instrument Name	Conductivity, Temperature, Depth
Generic Instrument Name	CTD profiler
Dataset-specific Description	CTD measurements taken, CTD unit unidentified
Generic Instrument Description	The Conductivity, Temperature, Depth (CTD) unit is an integrated instrument package designed to measure the conductivity, temperature, and pressure (depth) of the water column. The instrument is lowered via cable through the water column and permits scientists observe the physical properties in real time via a conducting cable connecting the CTD to a deck unit and computer on the ship. The CTD is often configured with additional optional sensors including fluorometers, transmissometers and/or radiometers. It is often combined with a Rosette of water sampling bottles (e.g. Niskin, GO-FLO) for collecting discrete water samples during the cast. This instrument designation is used when specific make and model are not known.

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Deployments

HX201

Website	https://www.bco-dmo.org/deployment/57502
Platform	R/V Alpha Helix
Start Date	1997-10-10
End Date	1997-10-17
Description	**Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX203

Website	https://www.bco-dmo.org/deployment/57503
Platform	R/V Alpha Helix
Start Date	1998-03-08
End Date	1998-03-15
Description	Cruise information and original data are available from the NSF R2R data catalog. **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX205

Website	https://www.bco-dmo.org/deployment/57504
Platform	R/V Alpha Helix
Start Date	1998-03-31
End Date	1998-04-07
Description	Cruise information and original data are available from the NSF R2R data catalog. **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX208

Website	https://www.bco-dmo.org/deployment/57505
Platform	R/V Alpha Helix
Start Date	1998-05-07
End Date	1998-05-14
Description	Cruise information and original data are available from the NSF R2R data catalog. **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX211

Website	https://www.bco-dmo.org/deployment/57506
Platform	R/V Alpha Helix
Start Date	1998-07-10
End Date	1998-07-17
Description	Cruise information and original data are available from the NSF R2R data catalog. **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX215

Website	https://www.bco-dmo.org/deployment/57507
Platform	R/V Alpha Helix
Start Date	1998-10-02
End Date	1998-10-09
Description	Cruise information and original data are available from the NSF R2R data catalog. **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX216

Website	https://www.bco-dmo.org/deployment/57508
Platform	R/V Alpha Helix
Start Date	1998-12-01
End Date	1998-12-08
Description	Cruise information and original data are available from the NSF R2R data catalog. **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX217

Website	https://www.bco-dmo.org/deployment/57509
Platform	R/V Alpha Helix
Start Date	1999-03-14
End Date	1999-03-21
Description	Cruise information and original data are available from the NSF R2R data catalog. **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX218

Website	https://www.bco-dmo.org/deployment/57510
Platform	R/V Alpha Helix
Start Date	1999-04-12
End Date	1999-04-19
Description	**Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX219

Website	https://www.bco-dmo.org/deployment/57511
Platform	R/V Alpha Helix
Start Date	1999-05-06
End Date	1999-05-13
Description	**Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX223

Website	https://www.bco-dmo.org/deployment/57512
Platform	R/V Alpha Helix
Start Date	1999-08-26
End Date	1999-09-02
Description	**Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX225

Website	https://www.bco-dmo.org/deployment/57513
Platform	R/V Alpha Helix
Start Date	1999-10-05
End Date	1999-10-12
Description	**Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX226

Website	https://www.bco-dmo.org/deployment/57514
Platform	R/V Alpha Helix
Start Date	1999-11-30
End Date	1999-12-07
Description	**Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX228

Website	https://www.bco-dmo.org/deployment/57515
Platform	R/V Alpha Helix
Start Date	2000-03-07
End Date	2000-03-15
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX230

Website	https://www.bco-dmo.org/deployment/57516
Platform	R/V Alpha Helix
Start Date	2000-04-18
End Date	2000-04-26
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX231

Website	https://www.bco-dmo.org/deployment/57517
Platform	R/V Alpha Helix
Start Date	2000-05-17
End Date	2000-05-25
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX234

Website	https://www.bco-dmo.org/deployment/57518
Platform	R/V Alpha Helix
Start Date	2000-08-13
End Date	2000-08-23
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX237

Website	https://www.bco-dmo.org/deployment/57519
Platform	R/V Alpha Helix
Start Date	2000-10-03
End Date	2000-10-11
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX238

Website	https://www.bco-dmo.org/deployment/57520
Platform	R/V Alpha Helix
Start Date	2000-12-01
End Date	2000-12-09
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX239

Website	https://www.bco-dmo.org/deployment/57521
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx239cr.pdf
Start Date	2001-03-02
End Date	2001-03-13
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX241

Website	https://www.bco-dmo.org/deployment/57522
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx241cr.pdf
Start Date	2001-04-03
End Date	2001-04-14
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX243

Website	https://www.bco-dmo.org/deployment/57524
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx243cr.pdf
Start Date	2001-05-04
End Date	2001-05-14
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX246

Website	https://www.bco-dmo.org/deployment/57526
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx246cr.pdf
Start Date	2001-06-28
End Date	2001-07-09
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX248

Website	https://www.bco-dmo.org/deployment/57528
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx248cr.pdf
Start Date	2001-07-30
End Date	2001-08-08
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX252

Website	https://www.bco-dmo.org/deployment/57529
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx252cr.pdf
Start Date	2001-10-09
End Date	2001-10-18
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX253

Website	https://www.bco-dmo.org/deployment/57530
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx253cr.pdf
Start Date	2001-12-04
End Date	2001-12-11
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX254

Website	https://www.bco-dmo.org/deployment/57531
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx254cr.pdf
Start Date	2002-03-04
End Date	2002-03-13
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX257

Website	https://www.bco-dmo.org/deployment/57532
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx257cr.pdf
Start Date	2002-04-05
End Date	2002-04-14
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX258

Website	https://www.bco-dmo.org/deployment/57533
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx258cr.pdf
Start Date	2002-04-30
End Date	2002-05-09
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX262

Website	https://www.bco-dmo.org/deployment/57534
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx262cr.pdf
Start Date	2002-07-19
End Date	2002-07-27
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX263

Website	https://www.bco-dmo.org/deployment/57535
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx263cr.pdf
Start Date	2002-08-13
End Date	2002-08-22
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX267

Website	https://www.bco-dmo.org/deployment/57536
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx267cr.pdf
Start Date	2002-10-01
End Date	2002-10-10
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX268

Website	https://www.bco-dmo.org/deployment/57537
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx268cr.pdf
Start Date	2002-12-03
End Date	2002-12-11
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX269

Website	https://www.bco-dmo.org/deployment/57538
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx269cr.pdf
Start Date	2003-03-04
End Date	2003-03-13
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX270

Website	https://www.bco-dmo.org/deployment/57539
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx270cr.pdf
Start Date	2003-04-01
End Date	2003-04-10
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX272

Website	https://www.bco-dmo.org/deployment/57541
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx272cr.pdf
Start Date	2003-05-23
End Date	2003-06-01
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX276

Website	https://www.bco-dmo.org/deployment/57543
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx276cr.pdf
Start Date	2003-08-13
End Date	2003-08-22
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX279

Website	https://www.bco-dmo.org/deployment/57544
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx279cr.pdf
Start Date	2003-10-08
End Date	2003-10-16
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX280

Website	https://www.bco-dmo.org/deployment/57546
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx280cr.pdf
Start Date	2003-12-02
End Date	2003-12-10
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX281

Website	https://www.bco-dmo.org/deployment/57545
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx281cr.pdf
Start Date	2004-03-19
End Date	2004-03-27
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX283

Website	https://www.bco-dmo.org/deployment/57547
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx283cr.pdf
Start Date	2004-05-03
End Date	2004-05-12
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX286

Website	https://www.bco-dmo.org/deployment/57548
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx286cr.pdf
Start Date	2004-06-27
End Date	2004-07-05
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX292

Website	https://www.bco-dmo.org/deployment/57550
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx292cr.pdf
Start Date	2004-09-30
End Date	2004-10-08
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

HX293

Website	https://www.bco-dmo.org/deployment/57551
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx293cr.pdf
Start Date	2004-12-01
End Date	2004-12-09
Description	Original cruise data are available from the NSF R2R data catalog **Acquisition Description** NEP-CGOA CTD data collected by Tom Weingartner

W0307A

Website	https://www.bco-dmo.org/deployment/57615
Platform	R/V Wecoma
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/w0307acr.pdf
Start Date	2003-07-05
End Date	2003-07-14

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Project Information

U.S. GLOBEC Northeast Pacific (NEP)

Website: http://nepglobec.bco-dmo.org

Coverage: Northeast Pacific Ocean, Gulf of Alaska

Program in a Nutshell Goal: To understand the effects of climate variability and climate change on the distribution, abundance and production of marine animals (including commercially important living marine resources) in the eastern North Pacific. To embody this understanding in diagnostic and prognostic ecosystem models, capable of capturing the ecosystem response to major climatic fluctuations. Approach: To study the effects of past and present climate

variability on the population ecology and population dynamics of marine biota and living marine resources, and to use this information as a proxy for how the ecosystems of the eastern North Pacific may respond to future global climate change. The strong temporal variability in the physical and biological signals of the NEP will be used to examine the biophysical mechanisms through which zooplankton and salmon populations respond to physical forcing and biological interactions in the coastal regions of the two gyres. Annual and interannual variability will be studied directly through long-term observations and detailed process studies; variability at longer time scales will be examined through retrospective analysis of directly measured and proxy data. Coupled biophysical models of the ecosystems of these regions will be developed and tested using the process studies and data collected from the long-term observation programs, then further tested and improved by hindcasting selected retrospective data series.

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Program Information

U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Website: http://www.usglobec.org/

Coverage: Global

U.S. GLOBEC (GLOBal ocean ECosystems dynamics) is a research program organized by oceanographers and fisheries scientists to address the question of how global climate change may affect the abundance and production of animals in the sea. The U.S. GLOBEC Program currently had major research efforts underway in the Georges Bank / Northwest Atlantic Region, and the Northeast Pacific (with components in the California Current and in the Coastal Gulf of Alaska). U.S. GLOBEC was a major contributor to International GLOBEC efforts in the Southern Ocean and Western Antarctic Peninsula (WAP).

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0109078
National Oceanic and Atmospheric Administration (NOAA)	unknown NEP NOAA

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