much in the 30 years since the introduction of superconducting magnetometers, with most studies still utilizing some combination of alternating field, thermal, microwave, or chemical demagnetization to isolate the principal magnetic components (although the number of demagnetization steps per specimen has certainly improved with the increasing use of automation). In contrast, techniques for the analysis of paleomagnetic data have improved substantially (e.g., [2,3]). Hence, public access to the archived raw demagnetization data would not only allow independent scrutiny of the interpretive stage of paleomagnetic data analysis, it would permit new techniques with potentially greater analytical ability to be applied as they are developed for the recognition of otherwise hidden magnetic components in previously published studies.

Most of the popular routines for performing principal component analysis on specimen-level demagnetization data readily allow the importation of data into their fixed format files structure, and the data can be archived and indexed easily in this fashion (see [4,5]). We suggest that the deposition of such data in an expanded paleomagnetic repository be included as an eighth criteria in the commonly-used 7-point Van der Voo reliability scale, and that deposition such data be required before publication in any AGU-sponsored journal.

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OS62B-0264 1330h POSTER

Archival and Retrieval of Multi-Dimensional Rock Magnetic Data: A Job for BLOB's

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Rock magnetic data range in complexity from simple parameters such as SIRM, to structured multi-dimensional data sets such as First Order Reversal Curves (FORC's) and magnetic susceptibility measured as a function of temperature, amplitude, and frequency. While some data are suited to storage in a conventional database, such as age- or depth-varying parameters common to environmental magnetism, more complex multi-dimensional data sets can not easily be stored in a database. However, these complex data sets can be stored as BLOB's (Binary Large Objects), in separate data files with catalogues and derived parameters in the actual database. Programs or applets can then be written to search through all or a subset of BLOB's for certain information or characteristics that are stored in the data sets. However, searching through a large number of BLOB's is a slow process. It is necessary to provide a fairly comprehensive summary in the forms of metadata, summary data and derived data, which are stored in the database and can be used to limit the scope of the BLOB search. We will illustrate several sets of data from simple to complex and show how the metadata, summary data and derived data relate to the various primary data. We will also propose some initial methods or applets that can be used to search BLOB's and extract useful information.

OS62B-0265 1330h POSTER

PMAG: Database Examples for Paleomagnetic and Archeomagnetic Studies

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The Paleo-Magnetic Archival Group (PMAG) designed a modern paleo-magnetic database that is integrated in the existing EarthRef.org umbrella website. PMAG has been developing data and metadata templates that can be used to assemble all data during the publication process in a standardized format. These standardized templates are available in a Microsoft Excel format and can be manipulated using software tools that form the backbone of the data population efforts for this database. In this presentation, we will lay out some examples and show how to use these templates during data population, publication and how they appear in the online databases under http://earthref.org/databases/PMAG/. Using examples for directional paleomagnetic and archeointensity studies, we will explain what data need to be populated, what information is essential or optional, how to customize the data and metadata templates using the template wizard (which will hide/show certain tables and columns based on the type of study), how to import/export simple text files, how to validate the data, and how to check for the internal coherence of these data in the template. We will also show how to search online in the EarthRef.org archives and how to download the template files to your own computer. Finally, we will show some basic queries that can be made into (a prototype of) the relational PMAG database, in order to retrieve data. For more information on the development of PMAG data and metadata standards, template files and software tools, please visit the http://earthref.org/metadata/PMAG/ metadata website.

URL: http://earthref.org/metadata/PMAG/

OS62B-0266 1330h INVITED POSTER

Integral Interpretation of Rock Magnetic, Sedimentological and Geochemical Data in Marine Sediment Studies

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Rock magnetic data of marine sedimentary sequences can serve vastly different purposes: (1) identification of NRM carriers, (2) core correlation, (3) orbital age modeling, (4) source and transport tracking, (5) unmixing of terrigenous and biogenous fluxes, and (6) detection of diagenesis effects. Established methods suffice for aim (1) and are often applicable for aims (2-3). For the more ambitious paleoenvironmental aims (4-6), all existing magnetic parameters entail interpretational ambiguities. Magnetic granulometry, for instance, can be an expression of erosion intensity, source mixing, sea level, sorting, winnowing, coarsening by partial depletion or fining by authigenic enrichment. Magnetic concentration parameters and mineral ratios have similar problems. The reliability of paleoclimatic and -oceanographic reconstructions from rock magnetic records depends largely on the correctness of the adapted working hypothesis, which must be newly validated for every location and facies under study.

As illustrated by South Atlantic case studies, some ambiguities can be clarified by co-interpreting temporal patterns, regional trends and accumulation rates of selective rock magnetic parameters (e.g. M_{ar}, M_{ir}, M_{hir} and κ_{fd}). For analyzing depositional system, these 'raw' parameters tend to be more valuable than their more frequently published ratios. They can be internally recalibrated to model cumulative parameters such as κ or M_{sir}. Conditions for the applicability of this 'partial susceptibilities' method are frequently met in marine settings.

An alternative is to calibrate or integrate rock magnetic with sedimentological and geochemical data. Using porosity, $CaCO_3$, Fe data, an open ocean susceptibility signal can be decomposed into continental (source-mixing), marine (carbonate dilution) and diagenetic (depletion/enrichment) components. The magnetite dissolution index Fe/κ_{nd} quantifies reductive magnetite losses. The carbonate-free dry bulk version of κ is reduced to terrigenous influences. To facilitate such analytical methods in future studies, we should not just collect and co-interpret interdiciplinary data sets, but also provide facilities to hold them integrally in rock magnetic data bases.

OS62B-0267 1330h POSTER

Performance Evaluation of INMARSAT Fleet 77 Services Aboard the R/V Ewing

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In late 2001, the R/V Ewing was asked to conduct a trial installation of the Thrane & Thrane [of Denmark] F77 antennae [TT-3084A Capsat] and the newest IMNARSAT communications channel, INMARSAT F. Branded as Fleet F77 Service by INMARSAT, the service provides ISDN 64kbps and 56kbps high quality voice and data connections as well as Mobile Packet Data Service which allows an always on connection under which users pay for the packets they send rather than the time they are connected. Fleet F77 also allows low bandwidth [2.4kbps] Mini-M voice and fax services. While not currently available, the Capsat antennae also is prepared to take advantage of 4th Generation Inm-IV satellites [expected in 2004] allowing LAN speeds up to 432kbps.

The F77 antenna consists of two units, the TT-3084A antenna and a single Below Deck Unit. The Capsat antennae radome is a mere 84 cm in diameter considerably smaller than that typically associated with INMARSAT A or B. It was mounted above the forward port corner of the pilot house atop a reinforced mast. Below deck electronics consist of a single unit containing three analog RJ-11 interfaces, a single ISDN interface, two RS-232 serial interfaces, a USB interface [not functional on our test unit] and a standard Handset. This was mounted in the pilot house electronics space.

The Capsat antennae and associated electronics were installed in Guam in mid February 2002 and the system began operational trials during the following cruise on February 24th. Tests of the Fleet 77 system consisted of Mini-M voice and fax both to and from the ship, 64kbs voice to and from the ship, MPDS connects to shore, and operational tests with the INMARSAT Command Center. The trial period completed May 12th after which the F77 became an integral part of the Ewings communication suite. Results of these tests as well as latency and packet loss measurements made over various data connection types will be presented.

OS62C MCC: Hall D Saturday 1330h

Numerical Ocean Modeling Posters

Presiding: **K R Thompson,** Dalhousie University

OS62C-0268 1330h POSTER

An Identical Twin Experiment for the Development of A 4D-VAR Data Assimilation System for the ARGO Data

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ARGO is an international project aiming at monitoring the world ocean in real time by using automatic profiling floats. The measured profiles of temperature and salinity within the upper and middle layers (2000m) of the Ocean with the ARGO floats, play an important role in understanding and forecasting climate. The data will not only greatly enhance our knowledge to the ocean dynamics but also supply valuable evidences to improve the predictive models.

However, the obtained ARGO data is sparsely distributed both in time and in space. For its effective use, it is necessary to create the physically integrated 3-dimensional gridded dataset from the sparsely observed ARGO data. This study is thus focused on develop a 4D-VAR data assimilation system to meet this demand.

The developed 4D-VAR data assimilation system is constituted with MOM3 (GFDL) and its adjoint by using 4-dimensional variational method. The preconditioned Conjugate Gradient method is also used to solve the system. With this assimilation system, the best-fit solution to the measured data and the oceanographic model can be obtained.

To verify the developed assimilation system, an identical twin experiment is carried out, in which a global model with 3deg.x3deg. resolution and 2000 artificial ARGO floats are used. By controlling the initial condition, the surface heat and fresh water fluxes, as well as the surface wind stress, the total cost is decreased by 60 percent after only 35 iterations of assimilation. The identical twin experiment showed that the performance of the developed assimilation system is satisfactorily good.

OS62C-0269 1330h POSTER

Operational Data Assimilation in the Mercator North Atlantic and Mediterranean High Resolution Prototype PAM

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The Mercator project develops several ocean circulation models for forecasting systems to take part in the international GODAE (Global Ocean Data Assimilation Experiment). A software named PALM (Projet d'Assimilation par Logiciel Multi-méthodes) has been developed at CERFACS (Centre Européen de Recherche et de Formation Avancée en Calcul Scientifique) in order to have a system able to drive the modeling, the assimilation and the data components together.

An analysis and forecasting system PSY1 (Prototype SYstem 1) is already operating over the North Atlantic with a 1/3° horizontal grid mesh resolution. For the new system prototype (PSY2), the ocean model (PAM) is based on OPA-8.1, a general circulation model developed at LODYC (Laboratoire d'Océanographie DYnamique et de Climatologie, Paris), and is designed to simulate the Atlantic and Mediterranean oceans with a very high horizontal resolution (5 to 7 km). As for PSY1, the optimal interpolation scheme SOFA (System for Ocean Forecasting and Analysis) developed at LEGOS (Laboratoire d'Etudes en Géophysique et Océanographie Spatiale, Toulouse) is used for the data assimilation.

This second system prototype is planned to run in a real time mode at the end of 2002. In this context, some assimilation results using altimeter observations are presented. Comparisons between PSY1 and PAM model without assimilation show the high resolution and the assimilation impacts, particulary in the area of the Gulf Stream.

OS62C-0270 1330h POSTER

Frequency Dependent Nudging of Hydrographic Data Into a Numerical Model of the North Atlantic

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Nudging is one of the simplest ways of assimilating data into ocean models and it has been used for many years in studies of large-scale ocean circulation. One of its drawbacks is the suppression of eddies when nudging an eddy-permitting ocean model strongly toward an observed seasonal climatology. We propose a straightforward extension of nudging in which the model's climatology, rather than its instantaneous state, is nudged toward the observed seasonal climatology. In effect we propose nudging in specific frequency bands that are centered on the discrete frequencies evident in the observed climatology (e.g. 0, 1/12 and 1/6 cycles per month). This extension of conventional nudging allows the difference between the observed and modeled climatologies arbitrarily to be made small while allowing variations outside the selected frequency bands to evolve freely. We show how the method can be implemented efficiently in complex models using a Kalman filter and also discuss the benefits of spatially smoothing the nudges. We conclude with a demonstration of frequency dependent nudging using a 1/3 degree model of the North Atlantic.

OS62C-0271 1330h POSTER

A modelling study of the climatological current field and the trajectories of upwelled particles in the East Australian Current

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The climatological current field off the coast of New South Wales, Australia is investigated using a combination of observations and numerical simulations. In particular the flow dynamics are examined near Smoky Cape (30°55′S) in the vicinity of the East Australian Current separation point. The modelled velocity fields are highly non-linear over the shelf, consistent with alongshore acceleration where the continental shelf narrows and across-shore adjustment downstream of where the current separates from the coast. An investigation of the relative importance of the non-linear terms in the alongshore momentum equation reveals that UV_x and VV_y change sign south of the separation point, representing a shift in the flow regime from onshore advection and southward acceleration (north of the separation) to seaward advection and weaker southward currents (south of the separation). The region is characterised by high horizontal divergence. South of Smoky Cape, low Burger number near the bottom correspond with sub-critical values of Richardson number. As a consequence the current driven bottom boundary layer can remain active for a longer period of time, thus allowing a persistent flow of nutrient rich water into the coastal region. Modelled velocity fields compare favourably with observed velocity measurements that were obtained in this region during November 1998. Motivated by an observed chlorophyll maximum along the 25.25 σ_θ isopycnal, water of this density is used as a proxy for nutrient enriched water. The mean velocity fields both at the surface and along the 25.25 σ_θ isopycnal are used in a series of Lagrangian particle tracking experiments to investigate both the origin and fate of the upwelled water. It is found that upwelled water originates at depth to the north of Smoky Cape and at times well offshore. South of Smoky Cape, coastal recirculations are evident suggesting that upwelled water could be trapped in eddy fields adjacent to the coast. This potentially allows the utilisation of upwelled nutrients by phytoplankton and subsequent further integration into the food chain. This may explain why phytoplankton blooms are prevalent in the region south of Smoky Cape.

OS62C-0272 1330h POSTER

Modeling of Tidal Circulation in Strait of Juan de Fuca

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A high-resolution three-dimensional hydrodynamic model (EFDC) was developed to simulate the barotropic tidal circulation and residual currents in the eastern region of Strait of Juan de Fuca. Complex circulation patterns have been observed in this high tidal energy regime due to complicated bathymetry and coastal boundaries. In the present study, the model was driven by major semi-diurnal and diurnal tidal constituents, as well as surface wind. The model consists of multiple eastern open boundaries, which connect to a number of estuarine systems. Historical water surface elevation and ADCP data were used to calibrate the model over a period covering the spring and neap tidal cycles. A localized high-resolution grid was developed near Port Angeles Harbor to study the dynamics of a large tidal eddy. The effects of the bathymetry and coastal boundaries on the tidal circulation and residual currents were investigated. The long-term transport field was calculated using a Lagrangian approach. Comparisons between model results and field data indicate that the model reproduces the tidal dynamics in the Strait of Juan de Fuca well. Model results show that strong tidal residual currents are generated due to tidal nonlinearity and complex geometry.

OS62C-0273 1330h POSTER

Dynamical and Thermodynamical Processes Governing Fluid Pathways of the Upper Limb of the Atlantic Meridional Overturning Circulation

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Synthetic floats are released in an ocean general circulation model (HYCOM) to study three-dimensional fluid pathways followed by the upper limb of the Atlantic Ocean meridional overturning circulation as it navigates through the complex, time-dependent system of wind-driven gyres in the tropical/subtropical Atlantic. Pathways that extend into the interior subtropical North Atlantic Ocean are emphasized over the direct western boundary route to the Caribbean Sea. An experiment where 7200 floats are released in the southern hemisphere is analyzed to quantify dynamical and thermodynamical processes controlling the pathways. Vorticity constraints force upper limb water to approach the equator from the south within a predominantly inertial western boundary layer, and then require equatorial processes (inertial boundary layer dynamics, upwelling, heating) to reset water properties and permit the fluid to cross the equator. This typically requires eastward retroflection into the Equatorial Undercurrent. After upwelling at the equator, fluid either advects northward into the interior or westward along the equator to the western boundary. The latter fluid turns northward in a predominantly frictional western boundary layer (Munk layer). The generation of negative relative vorticity then breaks the boundary layer constraints and permits retroflection of a substantial fraction of this fluid into the eastward NECC near 5N from late spring through fall. After entering the ocean interior, much of this fluid advects northward in the Ekman wind drift during the subsequent winter to the southern subtropical gyre, being governed by surface boundary layer dynamics en-route. There the fluid subducts and advects southwestward, governed by layered thermocline dynamics with superimposed time dependent planetary wave variability, then enters the westward North Equatorial Current into the Caribbean. Sea. Individual fluid parcels usually take complex paths, making multiple attempts to enter the northern hemisphere or multiple treks around gyres, before permanently entering the North Atlantic subtropical gyre flow.

OS62C-0274 1330h POSTER

Mediterranean Eddies in the Mercator North Atlantic and Mediterranean High Resolution Prototype

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MERCATOR is a French operational oceanographic project and contributes to the Global Ocean Data Assimilation Experiment (GODAE) in 2003-2005. An analysis and forecast system is already operating over the North Atlantic with a 1/3° horizontal grid mesh resolution. The PAM (Prototype Atlantic Mediterranean) model is based upon the OPA8.1 primitive equation model developped at LODYC (Paris) with z-level vertical coordinates. It is a high resolution (5 to 7km) model over the North Atlantic Ocean (9°N-70°N) and the Mediterranean Sea.

The general circulation in PAM is in agreement with the main observed currents in North Atlantic Ocean and Mediterranean Sea. The high resolution allows a good representation of the mesoscale activity and particularly the salty lenses called MEDDIES (Mediterranean eddies). These structures have a well-known role for the dynamic and for the water mass composition in the North Atlantic region. MEDDIES may transport an important part of the salinity anomaly coming through the Strait of Gibraltar. This study is based on a 5 last years of the model simulation (1998 to 2002) where virtual lagrangian float trajectories have been launched. The trajectories of modeled floats indicate that the MEDDIES are formed by the interaction of the Mediterranean Water Outflow with sea-mounths

located near the Portugal coast. These trajectories also show that several MEDDIES are formed every year and drift at 1000 m depth during 2 or 3 years. A good agreement is obtained between observed and simulated MEDDIES.

URL: http://www.mercator.com.fr

OS62C-0275 1330h POSTER

Seasonal and interannual variations of the NEC bifurcation latitude in a high-resolution ocean GCM

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The variation of the North Equatorial Current (NEC) bifurcation latitude is investigated with a high-resolution ocean GCM. It shows that the NEC bifurcates when it reaches the Philippine coast, along which it branches into the northward flowing Kuroshio and the southward flowing Mindanao Current. The bifurcation occurs about 15 deg.N on average and is confined within depths around 500 m, and the bifurcation latitude varies with time and depth, and furthermore a change of vertical slope with season is also shown. During the northern summer the NEC bifurcation latitude is moved equatorward with a mild slope, while poleward movements with a steep slope are found during the northern winter. The slope change with season is very closely related to the poleward shift of denser water in the upper thermocline layer. On the interannual timescale, the meridional migration of the NEC bifurcation latitude is strongly influenced by the El Nino/Southern Oscillation. They are significantly correlated each other with 2-3 month time lag at the surface and no time lag at lower levels. El Nino pushes the NEC bifurcation latitude more poleward than that of normal wintertime, conversely La Nina prevents it from pushing to the north.

OS62C-0276 1330h POSTER

Simulation of Tropical Rainfall Variability

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The impact of sea surface temperature (SST) - especially the role of the tropical Atlantic meridional SST gradient and the El Nino-Southern Oscillation - on precipitation is investigated with the atmospheric general circulation model ECHAM4/T42. Ensemble experiments - driven with observed SST - show that Atlantic SST has a significant influence on precipitation over West Africa and northeast Brazil.

SST sensitivity experiments were performed in which the climatological SST was enhanced or decreased by one Kelvin in certain ocean areas. Changing SST in the eastern tropical Atlantic caused only significant changes along the Guinea Coast, with a positive anomaly (SSTA) increasing rainfall and a negative SSTA reducing it. The response was nearly linear. Changing SST in other ocean areas caused significant changes over West Africa, especially in the Sahel area. The response is found to be non linear, with only negative SSTA leading to significant reduction in Sahel rainfall. Also, the impact of the SSTAs from the different ocean regions was not additive with respect to the rainfall.

The influence of SST on precipitation over northeast Brazil (Nordeste) was also investigated. Three experiments were performed in which the climatological SST was enhanced/decreased or decreased/enhanced by one Kelvin in the North/South Atlantic and increased by two Kelvin in the Nino3 ocean area. All experiments caused significant changes over Nordeste, with an enhanced/reduced SST gradient in the Atlantic increasing/reducing rainfall. The response was nearly linear. The main effect of the Atlantic SST gradient was a shift of the ITCZ, caused by trade wind changes. The "El Nino" event generates a significant reduction in Nordeste rainfall. A significant positive SLP anomaly occurs in northeast Brazil which may be associated with the descending branch of the Walker circulation. Also a significant positive SLP over the Atlantic from 30S to 10N north occurs. This results in a reduced SLP gradient from the subtropical highs to the equator and a weakening of the trade winds.

OS62C-0277 1330h POSTER

External Forcing that Influence the Irregular Shedding of the Loop Current

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The Loop Current is known to shed eddies at irregular intervals from 3 17 months; the underlying forcing has not, however, been previously identified. We describe here numerical experiments over the western North Atlantic Ocean west of 55oW and from 6o to 50oN, forced by annual-mean (i.e. steady) or monthly temperature (T) and salinity (S) climatology, six-hourly winds (from the European Center for Medium-range Weather Forecast) over the Atlantic Ocean and eddies (from ERS/Topex satellites) in the Caribbean Sea, and examine their separate effects. In all cases, the total transport at 55oW is kept steady to isolate the system from effects further east. In the absence of eddies and winds, and under the annual-mean T/S climatological forcing, the model yields a nearly constant shedding period 9 months. The monthly variation in T/S climatology causes insignificant change to the constant shedding period. On the other hand, winds and eddies can account for the observed spread in the shedding period. Winds tend to cause shedding at shorter intervals, 4 12 months, while Caribbean eddies at longer periods 9 15 months. The underlying mechanism in both is the fluctuating inflow (transport and vorticity) that these forcing cause at the Yucatan Channel. The fluctuating inflow can also cause the eddy to temporarily (1 month) detach from, and then reattach back to, the Loop Current, a phenomenon sometimes observed.

OS62C-0278 1330h POSTER

Modes of Variability in the Yucatan Channel Flow

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Results obtained from a high resolution primitive-equation northwest Atlantic Ocean model with realistic topography and wind forcing are analyzed, in order to study the dynamics of the flow through the Yucatan Channel (YC) and the water mass exchange between the Gulf of Mexico (GOM) and the Caribbean Sea. The variability of the flow and the complicated model flow field structure in the YC are in good agreement with recent observations. An Empirical Orthogonal Function (EOF) analysis reveals the spatial and temporal variability of the along-channel flow. Three major dynamical modes were identified: 1. The EOF mode-1 (which contains 50% of the total energy) represents the cross-channel meandering of the upper frontal position. 2. The EOF mode-2 (which contains 18% of the total energy) represents variations in the magnitude of the inflow transport into the GOM and often correlates with Loop Current eddy shedding events. 3. The EOF modes-3 and 4 (which together contains 18% of the total energy) represent variations in the deep current over the sill. The most energetic peaks in the spectra of the time evolution of the EOF modes are at periods of about 6, 9 and 11 month, which are close to the observed main frequencies of eddy shedding events in the Gulf.

URL: http://www.aos.princeton.edu/WWWPUBLIC/PROFS

OS62C-0279 1330h POSTER

Variability of Freshwater Transport in the Northern Gulf of Mexico

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Numerical model simulations of the Gulf of Mexico predict an annual cycle of surface salinity throughout the northern Gulf that compares well to historical hydrographic data. The processes involved in producing this annual cycle are investigated using model and surface drifter data. Model experiments are used to examine the roles of mesoscale eddy activity and the seasonal variability of wind forcing and river discharge in connection with the upper ocean salinity field. It is shown that the annual cycle of the local winds greatly influences the fate of the freshwater discharged by the local rivers, primarily the Mississippi river. Model results and drifter data show that the low salinity water is transported westward over the broad Louisiana Texas Shelf in the fall and winter. This water is transported southward as a coastally attached current and often offshore by jets associated with eddy pairs along the western continental margin. In the spring and summer, the low salinity water of the northern Gulf spreads over deeper water to the east of the Mississippi Delta where it is influenced by the offshore circulation. Mesoscale eddies associated with the Loop Current can then entrain the low salinity water and transport it great distances from its origin. This pathway is shown to be associated with an increase in biological productivity offshore of the West Florida Shelf in the summer.

OS62C-0280 1330h POSTER

On the Interaction of Cyclonic Eddies with the Loop Current

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The life cycle of cyclonic eddies associated with the Loop Current (LC) evolution is studied using the Navy Coastal Ocean Model, Topex/Poseidon altimetry, and AVHRR images. It is shown that the formation of the cyclones in the western side of the LC is related to its dynamics, with their time of generation in the last stage of the anticyclone shedding from the LC. It is shown that the longest period registered between eddy shedding, between February 1998 and August 1999, is associated with the presence of a large cyclone that remains north of the LC during several months. Using numerical simulations, it is shown that large cyclones develop sporadically in the region and that they block the northward penetration of the LC. The LC is leaks mass, momentum, and energy through a jet and small anticyclones moving along the slope of the West Florida Shelf, east of the cyclone. The process causes an enlargement of the period between eddy shedding.

OS62D MCC: 270 Saturday 1330h

Remote Sensing of Ocean Surface Winds and Their Scientific Applications I *(joint with A, GC)*

Presiding: **W T Liu,** Jet Propulsion Laboratory**; S Xie,** University of Hawaii

OS62D-01 1330h INVITED

The Status of Measuring Ocean Winds From Space

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We will review the current status of measuring ocean winds with satellite microwave radiometers and scatterometers. It has been 16 years since the first SSM/I was launched. The SSM/Is now provide the longest continuous time series of satellite winds. We will discuss the wind retrieval accuracies of the 6 SSM/Is as well as two more recent microwave radiometers: the TRMM microwave imager (TMI) and the AMSR-E. Wind retrievals using different combinations of microwave channels will be compared. The inter-satellite calibration of these multiple sensors and the problems associated with constructing decadal time series of winds will be described. The passive radiometer retrievals will be compared to active scatterometer wind retrievals coming from NSCAT and QuikScat. The relative errors between the active and passive wind retrievals will be illustrated. We will discuss the calibration and validation of these satellite wind retrievals using the network of ocean buoys and the difficulty of calibrating and validating extremely high winds.

URL: http://www.ssmi.com