Spring 2004

Outlook

Wilkens Weather Technologies, L.P.

Member AR Group Inc.

News for Clients & Colleagues of WWT

Technology Meets Experience

How much downtime do you experience due to adverse weather or unfavorable loop and eddy currents? Would knowledge of short weather windows save you time and money? Could you reschedule your day and save money if you had the right tools and improved forecast accuracy and reliability?

WWT is now offering High Resolution Weather and Current/Eddy Forecasts.

WilkensNowcasting

Wilkens Weather Technologies (WWT) has been providing long-term forecasts, severe weather notification and 24-hour meteorologist support for over 25 years. Nowcasting International has become the leader in supplying high-resolution forecast data to the offshore industry in Europe, since 1999, and more recently in the US. Now WWT and Nowcasting International have come together to offer *WilkensNowcasting Pro*, a unique product providing optimal weather forecasting tools. This new product includes all the expertise WWT provided in the past, now enhanced by high-resolution weather and current forecasts.

High Resolution Forecasts:

WilkensNowcasting Pro provides the most advanced technology available in high-resolution marine weather forecast data. This PC based patented technology allows you to download accurate, reliable, and value added weather forecast data quickly and cost effectively.

Key Features:

- **High Resolution Forecasts:** forecast data is displayed hourly for the 1st 24 hours and every 3 hours for the 2nd 24 hours, both with 0.25 degree spatial resolution.
- **Timeliness & Reliability.** A dedicated server and communications link ensures prompt and reliable delivery of the most up to date weather data.
- **Graphical Display & Alarms.** You set your alarms to provide a clear visual of the weather allowing you to quickly and easily make critical decisions.

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Upcoming Shows

Offshore Technology Conference (OTC)
Reliant Center at Reliant Park - Houston
May 3-6, 2004
Booth #2408
See You There!

SPE Annual Technical Conference and Exhibition (ATCE)
George R. Brown - Houston
September 26-29, 2004
Booth #2136

Check us out at www.wilkensweather.com

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Technology Meets Experience. (Cont.)

- **Communications.** You may access this service through any Internet connection. The communications are optimized for cost effective marine solutions. Data is downloaded quickly and you are free to analyze the data offline.
- **Detailed Weather Parameters:**
  Wind Speed & Direction at 10 meters and 50 meters
  Significant Wave Height
  Swell Height
  Swell Period & Direction
  Sea Surface Current (See below - "Are Currents Bringing You Down?")
- Sea Surface Temperature
- **Archiving for Better Incident Reporting**
- **Coverage:**
- US East Coast, Gulf of Mexico, and the Caribbean
- European Coverage includes: the North Sea, Mediterranean, and the Atlantic coast of Europe

Key Benefits

- **Improved Safety:** The resolution & accuracy will support your operations during periods of bad weather when critical decisions can determine the safety of your people and equipment.
- **Improved Efficiency:** The accuracy of the high-resolution data will allow you to identify working windows of opportunity which otherwise may have remained unidentified.

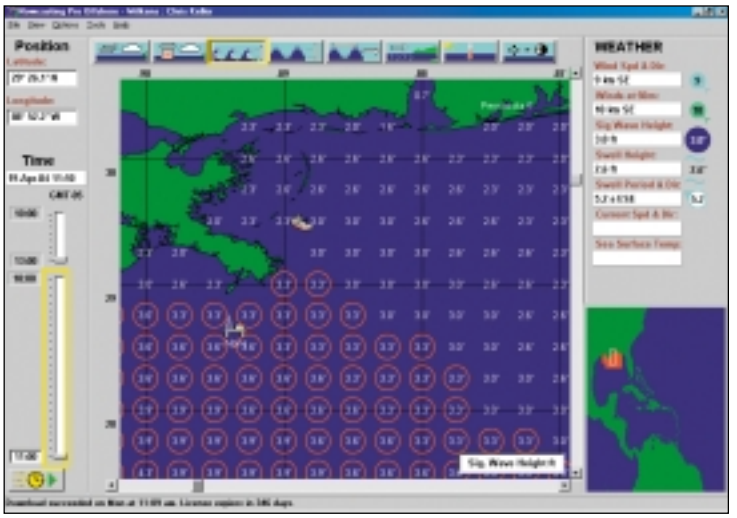
Are currents bringing you down?

The Loop Current is a stream of warm Caribbean water that enters the Yucatan Channel, meanders northward, sometimes extending far north into the Gulf of Mexico, and exits into the Straits of Florida after a sharp turn around the Florida Keys where it becomes the Florida Current. Meanders sometimes break off as the current becomes pinched through the Straits of Florida. These meanders are known as warm water eddies and carry with them the strength of the Loop Current.

Last year, as in other years, the Loop Current, left behind an eddy to traverse the Gulf of Mexico. Last year's eddy was known as Sargassum. Its diameter was up to 150 miles and it had surface currents nearing 3.5 knots. Its presence was felt from late April through October.

These strong currents can prevent or delay drilling, pipelay, ROV, construction, towing and mooring operations. Although the eddies are present for months at a time, the currents can change regularly. Having a tool to accurately predict these changes will allow you to optimize planning and improve operational efficiencies.

Years ago, the Climatology and Simulation of Eddies (CASE) project anticipated the need for such a tool. They extensively tested the Colorado University Princeton Ocean Model (CUPOM) against moorings, ship surveys and synoptic analyses. The CUPOM model is the most tested and most proven model for nowcasting and forecasting the Loop Current and major eddies in the Gulf of Mexico. High-resolution forecasts can now fill the gaps left by conventional tracking and monitoring and allow you to plan your operations based on reliable forecast data.



Sig Wave Height created on Nowcasting Pro 4

In the lease areas most commonly impacted by the Loop Current, the CUPOM model correctly estimates the distance to the Loop Current to within 10-15 miles in a 1-4 week forecast. The model performed admirably in forecasting the movement of the eddy center. To improve forecasting of the Loop Current and detached eddies, the model's horizontal resolution will be doubled to 1/24 degree with 24 depth levels and the southern boundary of the model will be extended into the southern Caribbean. The model accuracy will be further improved from the previous trials since there are now 5 satellites with radar altimeters in operation. No longer will small eddies easily slide through undetected.

You can gain access to the Loop Current and eddy forecast.

WilkensNowcasting is now offering forecasts for currents and eddies based on the tried and tested CUPOM model. In order to plan your schedule, you need to have access to a reliable forecast. Data obtained by tracking and monitoring will continue to feed into and improve the forecasts.

In the past, eddies have been tracked via satellite during the fall, winter and spring when water temperatures are cold enough that the warm eddies can be distinguished from the cooler Gulf waters. Unfortunately, cloud cover limits use year-round, and the lack of a thermal contrast limits use in summer. Satellite altimetry provides observations of the sea surface height above a frame of reference, but this is limited by spatial resolution and small eddies can slip through undetected. Eddies are monitored by floating buoys; however, the meanders may not be picked up due to smoothing. Currents can be measured from rigs but this is limited to providing information about what the currents are doing at the present time, at a given location. Ship surveys of the waters between a rig and the nearest eddy fronts have been used to track the movement of the eddy front over a period of hours or days. These surveys may be needed every 6 to 48 hours and can be quite costly. All of this tracking and monitoring has been put to good use in the model and with your help will continue to be used in the future to improve the model.

WilkensNowcasting is proud to offer this long awaited tool and is committed to continuously improving the forecast model through ongoing calibration.

2004 Hurricane Season Outlook for the North Atlantic

When preparing an extended outlook of this type, certain meteorological and oceanographic features that have an impact on the development, maintenance, weakening, dissipation or transformation of tropical cyclones, must be examined. The two most notable features are sea surface temperatures and high level winds. There are other parameters that need to be considered for each individual tropical cyclone during the course of the season, but these two can give us a good feel for the upcoming season and, in general, can be looked at from a seasonal perspective more easily than anything else.

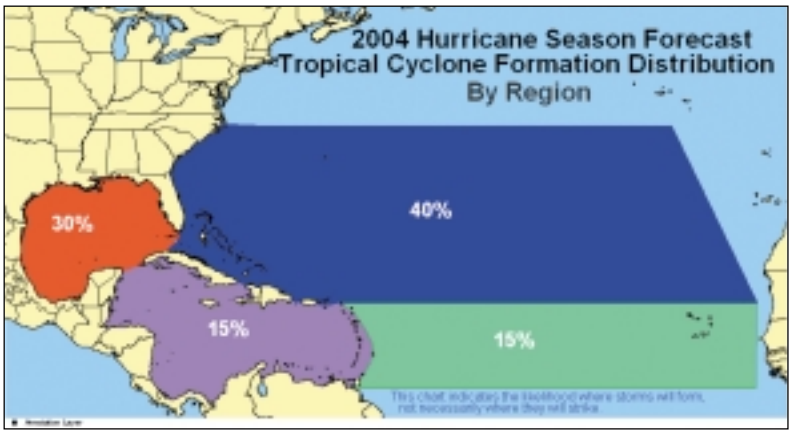
Sea surface temperatures (SSTs) in the North Atlantic Ocean are about 1 degree warmer than normal at this time and are forecast to remain so through this summer. Sea surface temperatures in the equatorial Pacific Ocean vary from slightly below normal to a degree or so warmer than normal. Additionally, a large portion of the sea surface west of California and Mexico is also about a degree or so warmer than normal.

The latest long-range indicators call for a neutral condition or a weak El Niño event to occur for the remainder of this spring and summer. That is, the SSTs in the central and eastern North Pacific should remain within a degree Celsius of climatological norms, or warm up a degree or so and hold near that level through early autumn. North Atlantic SSTs are expected to remain slightly warmer than normal through the hurricane season.

So far this spring, this SST pattern has been associated with stronger than usual high level winds across the subtropical and tropical latitudes in the northern half of the Western Hemisphere, somewhat to the south of where they normally occur. These jet stream level winds are typically located between 20 to 30 degrees north latitude in early spring and have recently been located between 15 and 25 degrees north.

The weather features producing the high level winds are expected to weaken and shift northward during the remainder of the spring. However, during the summer, there are expected to be breaks forming in the high pressure ridge which normally dominates the subtropical latitudes at that time. These breaks can allow upper level low pressure areas to drop out of the westerly winds of the mid latitudes and into the subtropical and tropical latitudes. This can do two things. First, it can produce an environment that interrupts or prevents the development of tropical disturbances. Secondly, some of these systems can weaken and produce thunderstorms within their own circulations, which may convert the disturbance from an inhibitor to a generator of tropical cyclones.

With all this in mind, we expect this year's number of tropical cyclones occurring in the North Atlantic Basin this season to be close or slightly less than last year. Therefore, 12-14 named tropical cyclones are expected during the 2004 North Atlantic Hurricane Season. Seven or eight hurricanes are expected, with two or three of these having the potential to become intense.



A Look Back at the 2003 Hurricane Season

During the past 10 years we have averaged 13 named storms per year. Two of those were notable El Niño years, allowing only seven in each. Excluding these two years raises the average of named storms per year to 14.5 during the other eight years. The long-term climatology is 10 named storms in a year.

In 2003, we had 16 named storms in the North Atlantic Ocean Basin, two in December, which is very unusual. Five started out in the Gulf of Mexico, two started in the Caribbean Sea, and all the rest were generated in the North Atlantic.

One, Claudette, spanned all three regions. It developed in the tropical Atlantic, crossed the Caribbean Sea and the Gulf of Mexico, made landfall along the Middle Texas Coast and died not too far from El Paso, TX and Ciudad Juarez, Mexico.

Fabian had peak maximum sustained winds of 125 knots just a few hundred miles to the east-northeast of the Virgin Islands; it struck Bermuda with 105 knot winds and a 143 knot peak gust.

Isabel had peak maximum sustained winds of 145 knots when it was in the central portion of the Subtropical North Atlantic. Isabel was in a weakening trend when it struck the Outer Banks of North Carolina.

Hurricane Animation and Range Rings

Do you need help in planning your hurricane response? Wilkens Weather Technologies Hurricane Animation and Range Rings are designed to do just that. This product provides a graphical presentation of the storm location and intensity, displaying how it will potentially affect your location. Go to www.wilkensweather.com and choose Online Brochure for more information on this exciting product.

2004 Summer Weather Outlook for the U.S.

So far this year, we have seen the weather pattern across the U.S. vary between a west to east movement and a northwest to southeast movement. At times, the cold fronts and low pressure systems have favored the West while high pressure favored the East and vice versa. As spring progresses to summer, we can expect a weaker version of the same. The Subtropical Jet Stream is forecast to slowly weaken and dissipate through June. The Polar Jet Stream is likely to weaken and shift north somewhat, but it should still allow low pressure systems and their cold fronts to drop into the U.S. Such an occurrence at regular intervals will break up the dominance of high pressure aloft in the subtropical latitudes from late spring into early fall, which in turn would put a limit on the seasonal mean temperature anomalies across the nation. Thus, most of the seasonal mean temperature anomalies will likely be within 3 degrees of normal this summer, as they were last summer.

The expected pattern indicates that for most of the summer cold fronts will be moving across the north-central and eastern states, some across the northwest and maybe 1 or 2, possibly none, across the southern states west of the Mississippi River. The Gulf Coast and East Coast will be affected by rainfall producing systems, some of them tropical cyclones, which should keep the temperatures near normal levels. Summer monsoon thunderstorms occurring in the Southwest are likely to prevent long stretches of above normal temperatures. Slightly above normal temperatures are indicated across the north, in much of the Plains north of Texas and in the interior West. Favored dry spots for this summer are the extreme Southeast and the interior West (Nevada, Utah, southern Idaho and nearby areas).

South Atlantic Hurricane #1

The first recorded hurricane in the South Atlantic Ocean Basin, which has been dubbed by some as “Catarina”, was spotted by satellite on Friday, March 26, 2004 over the water well south of Rio De Janeiro.

Looping of the satellite imagery during the two days that followed revealed that it had all the structure and support of a hurricane common in the North Atlantic. It had a well-developed eye, high pressure aloft over the circulation, spiral banding of squalls and thunderstorms, as well as intense squall activity surrounding the center. Sea surface temperatures were found to be marginally warm enough to support a tropical system.

It moved slowly, but steadily to the west and crossed the southern Brazilian coast Saturday night, March 27, 2004, near Torres, more than 500 miles southwest of Rio De Janeiro. It slowed to a crawl after moving onshore and weakened to a disorganized cluster of thunderstorms within 24 hours. It is blamed for the deaths of three people and left more than 2000 people homeless. Extensive damage to public buildings and private businesses has been reported.

South Atlantic Hurricane. *Photo Courtesy of CIMSS*

There has been some disagreement between U.S. and Brazilian officials as to the exact status of the storm. Although the U.S. National Hurricane Center gave this storm hurricane status, the Brazilian officials deny it was a hurricane.