



## HOT SPOTS

### Afghanistan Summer

From late spring through early fall, almost all of Afghanistan is frequently under hot, hazy, very dry air masses. The extreme eastern areas can get intrusions of moisture from the Arabian Sea, which produces isolated thunderstorms, mainly on windward mountain peaks.

Western Afghanistan's "wind of 120 days" is locally well known. The wind is set up by a thermal low that develops over the region. A persistent, very dry wind filled with dust, sand and salt, this north wind blows down the corridor of lowlands along the Iran border from May to September. The wind reaches peak strength at the southern end of the corridor, is strongest during the day and weakens considerably at night. Violent gusts are common (up to 60-70 knots).

Dust storms are most common in the southwestern third of the country, but they can reach eastward in an eddy effect that results from strong northerly winds funneled through the lowlands between the mountains of Afghanistan and Iran. See Figure 1.

Mountains are formidable natural barriers to moisture-bearing winds. They create significant differences in cloud cover and precipitation between windward and leeward sides of mountains

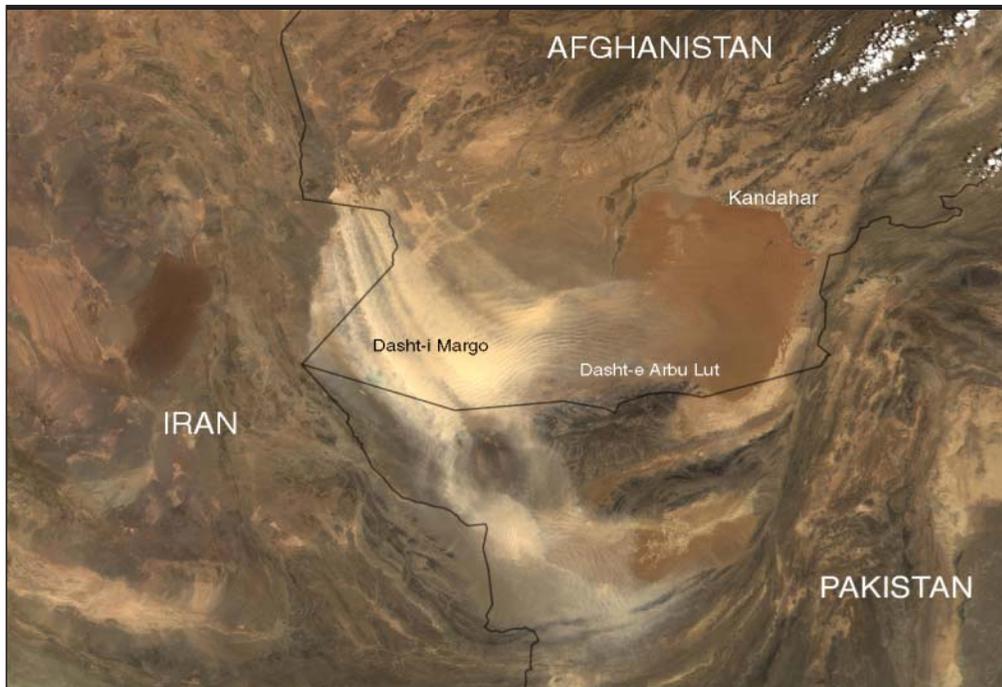


Figure 1. June 2, 2001 NASA Photo of Dust Storm over Southwestern Deserts; Convection over Extreme Eastern Mountains (Jacques Descloitres, MODIS Land Rapid Response Team).

(See Figures 2 and 3). The differences are less obvious in summer when nearly the whole country is dry, but are still seen in the eastern corner in summer. For more information, go to [https://www.afccc.af.mil/cgi-bin/index\\_mil.pl?afccc\\_info/products.html](https://www.afccc.af.mil/cgi-bin/index_mil.pl?afccc_info/products.html). Contact Mrs. Higdon at DSN 673-9001 or Com (828) 271-4218 or melody.higdon@afccc.af.mil.

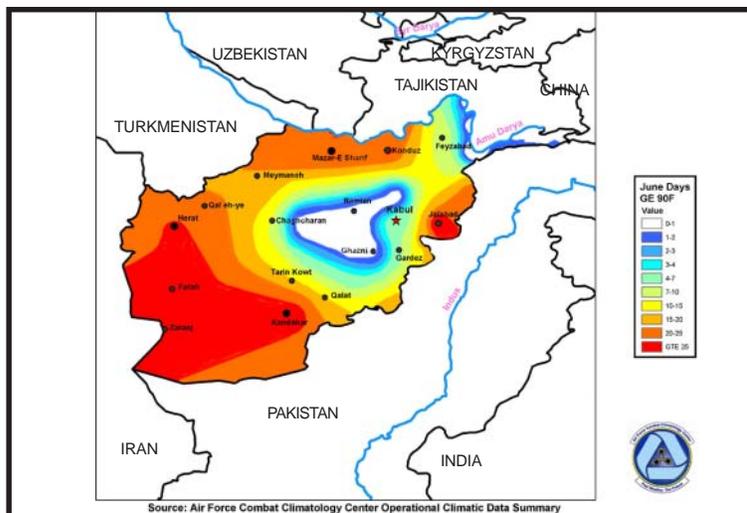


Figure 2. June Temperature Days Greater Than or Equal to 90F.

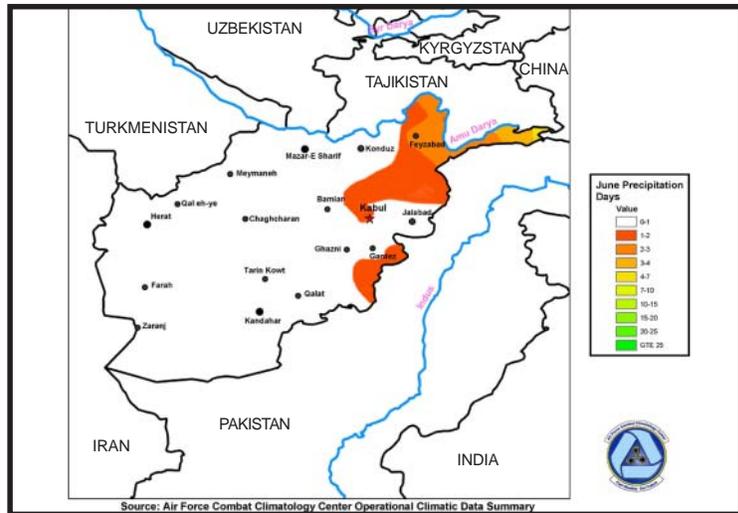


Figure 3. June Precipitation Days.

## Branch Spotlight

### Application Programming Branch

In addition to adding new hardware to manage more gridded analysis and forecast data, the AFCCC Application Programming Branch (SCS) modifies existing AFCCC ingest and archive processes to handle the new data set. AFCCC's current ingest and archive systems already process and store AFWA's Worldwide Merged Cloud Cover Analysis data, Navy Operational Global Atmospheric Prediction System (NOGAPS) gridded analysis and forecast data, surface observations, aircraft observations and weather satellite derived data, a total of 1.5 gigabytes of data every day. The current ingest and archive systems are composed of approximately 200,000 lines of software in 565 modules coded in FORTRAN, C, Perl, SQL and Unix shell script languages. SCS reuses some components of the current ingest and archive system, but also develops new components in Java to meet DoD requirements.

In March 2004, AFCCC began to receive and archive Global Forecast System (GFS) data generated by National Oceanographic and Atmospheric Administration's National Centers for Environmental Prediction. GFS is worldwide analysis and forecast data produced at multiple levels in the atmosphere at one-half degree latitude-longitude resolution. AFCCC receives GFS data four times each day from Air Force Weather Agency. The new data set will force AFCCC's hardware and software systems to process and store approximately 2.8 gigabytes of additional data each day, nearly twice what we received at the end of February 2004.

SCS's analysis of GFS Ingest and Archive requirements is nearly complete and design of a subsystem to handle the data is underway. The new subsystem will be ready early this summer to provide higher-resolution analysis and forecast data for AFCCC's new Point Analysis capability being developed by Raytheon. The one-half degree GFS data set will eventually replace NOGAPS one-degree resolution data, ultimately enabling AFCCC to generate more accurate atmospheric point analyses for national intelligence community users supporting warfighters around the world. Contact Maj Staley at DSN 673-9009/(828) 271-4162/email: michael.staley@afccc.af.mil, or Mr Jon Whiteside at DSN 673-9006/Com 828-217-4299/email: jon.whiteside@afccc.af.mil..

## Ops Impacts

### AFMC – Airborne Laser (ABL).

The ABL weapon system consists of a high-energy, chemical oxygen iodine laser (COIL) mounted on a modified 747-400F (freighter) aircraft to shoot down theater ballistic missiles in their boost phase. ABL will play a vital role in the nation's theater missile defense.

Atmospheric turbulence has been an important consideration in development of this weapon system. Since air, like water, is made up of many layers, scientists have been working to find a way to compensate for these disturbances in the atmosphere in order to focus a high-energy beam on the target and hold the beam in place long enough for it to complete the destruction process.

AFCCC assisted the ABL system program office by providing worldwide upper atmospheric statistical data in support of 3-star Missile Defense Agency decision brief on worldwide ABL testing. By providing historical data analysis, the design and test engineers are better able to ensure this \$1.1B system will meet the needs of national command authorities.

### US Army – Stryker III MILCON project.

Stryker-III, the combat vehicle of choice for the Army's Interim Brigade Combat Teams (IBCTs), is a highly deployable-wheeled armored vehicle that combines firepower, battlefield mobility, survivability and versatility, with reduced logistics requirements. The Stryker-equipped IBCT will provide the joint and multinational force commander increased operational and tactical flexibility to execute the fast-paced, distributed, non-contiguous operations envisioned across the full spectrum of conflict.

The new Stryker armored vehicle is being bedded down at Ft. Wainwright, Alaska. Alaska's harsh climate presented problems for a \$60M MILCON design project. The project involved building rapid deployment and training facilities. The design had to ensure that extreme cold did not impede day-to-day training or the ability of C-5 airlift aircraft to rapidly load Stryker equipment and units. AFCCC armed project engineers with data on extreme cold to ensure designs met Army and Air Force requirements.

## What's New

**Narratives.** The following new narrative studies are available on the AFCCC website:

Haiti  
Haiti Briefing Maps

Lome, Togo  
Yuma Proving Grounds  
National Training Center (Ft Irwin CA)  
Precipitation (2003/2004) in the Tigris/Euphrates River Basin

# Data Archive Impacts

Operations in Southwest Asia (SWA) have dramatically increased the number of weather data requests for the theater. Most of these come from in-theater. AFCCC has difficulties meeting some of these requests because the observations have not been forwarded to us. We generate many products from your observations. Historically, indigenous SWA weather data (particularly Summary of the Day (SOD) data) has been very limited, which makes the data collected by deployed weather personnel invaluable.

The primary source of observational and Summary of the Day data is the AF Form 3803, used by all Air Force combat weather teams. To make it easier to send these forms, we created an Excel-based version of the 3803 (XL3803). To date, AFCCC has received very few XL3803s from deployed units in SWA. This hampers our ability to provide accurate products to you and your customers.

The XL3803 is the most portable, user-friendly and timely method of getting SOD data to AFCCC. It is available in the ".mil domain" of AFCCC's web page (NIPRNET: <https://www.afccc.af.mil> and SIPRNET: <http://afccc.asheville.af.smil.mil>).

There are two ways for deployed units to send AFCCC the XL3803:

- 1.E-mail on NIPRNET: [observation\\_3803@afccc.af.mil](mailto:observation_3803@afccc.af.mil). If SIPRNET is your only means of communication, use the following address: [fdod@asheville.af.smil.mil](mailto:fdod@asheville.af.smil.mil).
2. Mailing the XL3803 (preferably on a CD, but hardcopies are acceptable as a last resort) to the following address:

AFCCC/DOD  
151 Patton Avenue, Room 120  
Asheville, NC 28801-5002

Once the forms are received at AFCCC, they are quickly turned into climatology products for your use. The sooner we receive the data, the sooner we can provide the warfighter with products critical to accomplishing their mission.

In short, we need you to help us better serve you, and the best way you can do this is by sending us your 3803's as soon as possible. If you have any questions regarding the 3803 process, please contact SSgt Lois Marin at DSN: 673-9006/Commercial: (828) 271-4220 or email: [lois.marin@afccc.af.mil](mailto:lois.marin@afccc.af.mil). The secondary contact is AFCCC/DOD at DSN:673-9006/Commercial: (828) 271-4410 or email: [dod@afccc.af.mil](mailto:dod@afccc.af.mil).



The Air Force Weather Technical Library has approximately a quarter million technical documents, one of the largest such collections in the world. And all the information in all these books and microfiche is correct, right? Well, not necessarily. While researching for additional

weather information we came across the following site sponsored by Pennsylvania State University. It highlights some common "mistaught" weather concepts. So if you've been through the weather class at Chanute or Keesler or a vaulted university, step back for a moment and visit <http://www.ems.psu.edu/~fraser/BadMeteorology.html>

If you're interested in the homepage for Michigan eLibrary go to: <http://mel.org/index.jsp>. On this page "Science and the Environment" will get you to a sub-page where you can visit many interesting "Weather" sites. And don't forget to visit the AFWTL web page. Its link is located on the AFCCC homepage. From our web page you can link to most of the Air Weather Service / Air Force Weather Agency produced technical documents. And they all contain correct information? Contact John Gray at DSN 673-9019/Com 828-271-4320, or [john.gray@afccc.af.mil](mailto:john.gray@afccc.af.mil).



The detachment has a "*Tropical Climatology*" section under "*Products*" on our web sites. It contains global tropical cyclone information. The **Global Tropical Cyclone Climatic Atlas** link displays tropical cyclone tracks, data and narratives by ocean basin, month(s) and year(s) from the late 1800's to the latest available. The **Preferred Tropical Storm Tracks** link contains graphical depictions of preferred storm tracks by basin, month or partial month. The **Tropical Cyclone Basin Graphics** link displays percent frequency of tropical storms by season, number of storms reaching hurricane stage and number of storms by category for each basin by month. The **Initial Point of Hurricane Stage Image** link shows the points where individual storms became hurricanes between the years of 1940-1995. We also have links to other web sites of possible interest. Our web sites have marine upper air, tropical and historical products. We are here to answer your marine climatology questions, so make us your first stop.

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siprnet: <http://afccc.asheville.af.smil.mil>

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