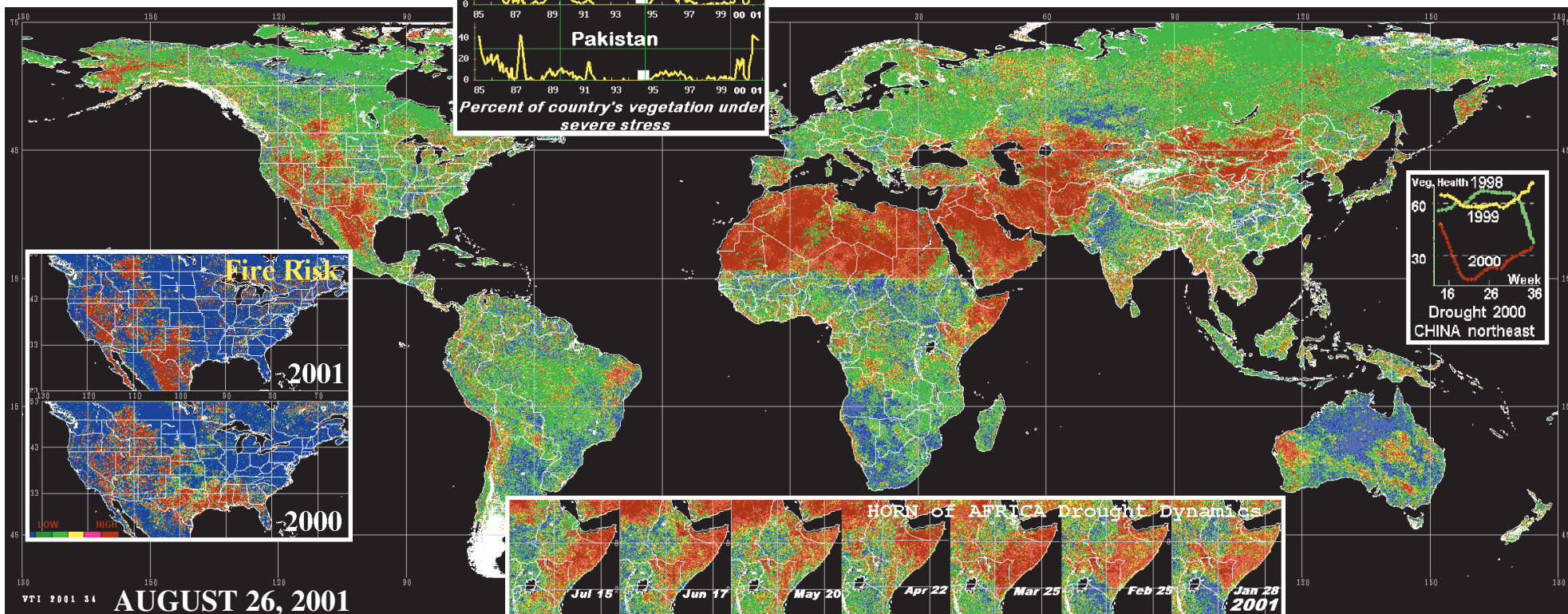
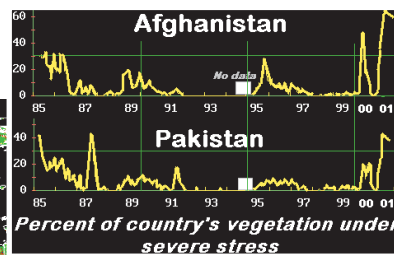


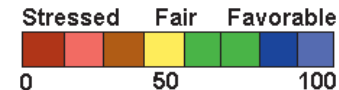
# National Oceanic and Atmospheric Administration

## National Environmental Satellite, Data and Information Service



# VEGETATION HEALTH

(SURFACE CONDITIONS)





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### **DROUGHTS IN THE NEW MILLENNIUM FROM NOAA'S POLAR ORBITING SATELLITES**

The new millennium was marked by a new series of large-area droughts around the world. They had grim consequences for economies, environment and human life in many affected countries. In addition to unusual physical impacts, psychological effects of droughts on society were enormous because they developed after a relatively favorable vegetation condition in 1999. The presented images show an inventory of large- and small-scale droughts, which led to huge societal impacts in 2000 and 2001.

As seen in the image, many countries in Africa, Asia and North America experienced the fury of two-year droughts. Long, intensive spring and summer dryness developed in the southern and eastern United States during 2000 and 2001. Satellite data identified huge areas in the northwestern states vulnerable to intensive fire activity. During the two-year period, active fires consumed large amount of forest resources.

Early season drought in the Horn of Africa started in early 2000 and over the four month period, expanded and intensified so much that it turned into a national disaster. This drought continued in 2001 causing a minor agricultural season failure in Ethiopia (two years in a row), outbreak of diseases (reports on cholera) in Somalia, bad pasture conditions and livestock death in Kenya and food shortages for millions of inhabitants all over the region.

In Asia, crop producing regions and rangelands of Afghanistan, Pakistan, Iran, India, Mongolia and China were severely hit by spring and summer dryness during 2000 and 2001. The consequences included losses in agricultural production, shortages of water, low reservoir levels, and tens of millions people affected. Unusual summer dryness also affected the new countries (from the former USSR) in the Caspian Sea region.

As a new satellite-based method for early drought detection showed, nearly 20 percent of the world's land was drought-stricken in 2000 and 2001. Unlike other remote sensing techniques, the new method was based on three Advanced Very High Resolution Radiometer (AVHRR)-derived radiance (visible, near infrared and thermal), which were used as a proxy for assessment of vegetation health, moisture and thermal conditions. Furthermore, the method has been tested worldwide for eight years and has showed excellent utility for early drought detection, and monitoring its impact. In addition, several other drought-related products were used during 2000 and 2001 to assess drought area and intensity, monitor fire risk, diagnose drought impacts on agricultural production, and evaluate potential development of human vector-borne diseases.