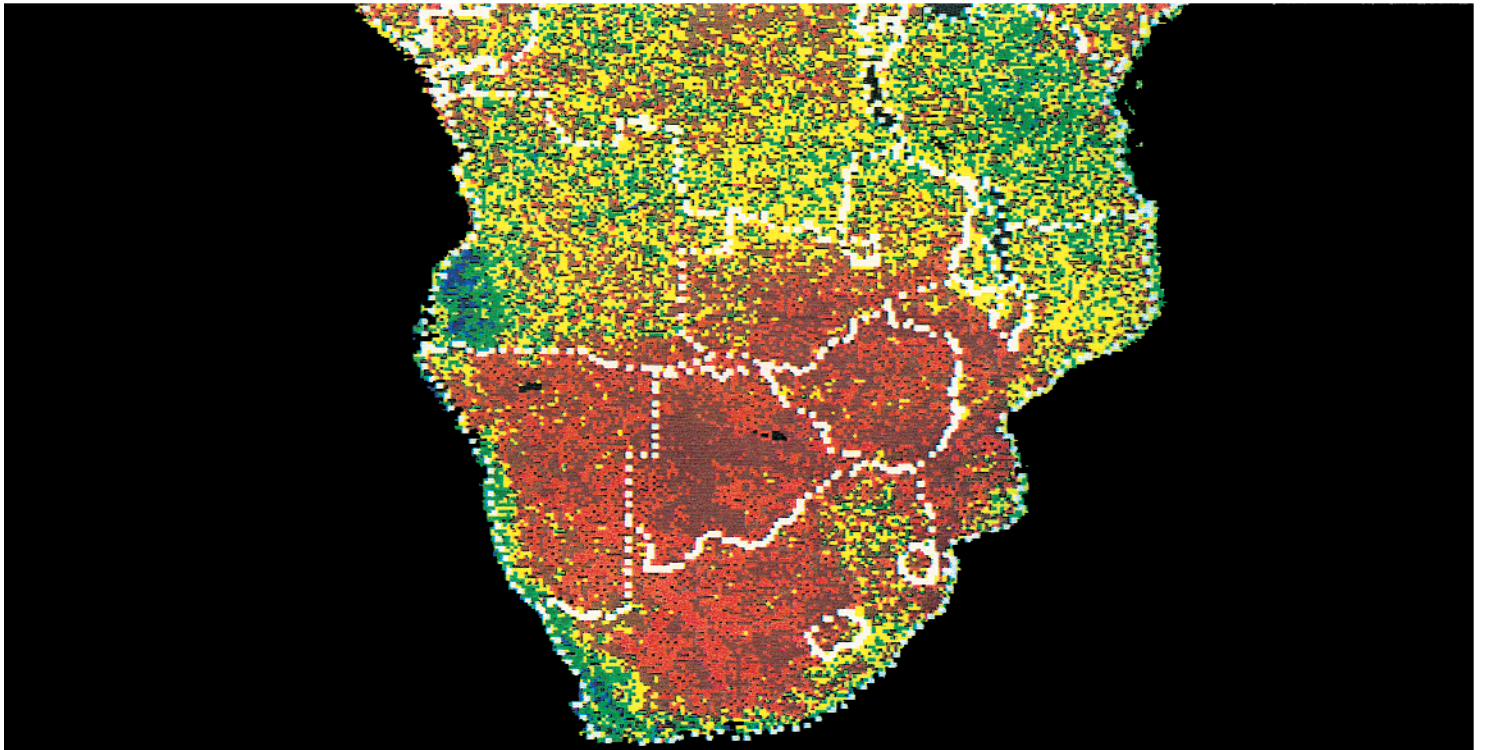# National Oceanic and Atmospheric Administration
National Environmental Satellite, Data, and Information Service

LAST WEEK OF FEBRUARY

Vegetation Condition (VT) in El Nino Years

Vegetation Condition (VT) in La Nina Years

STRESSED   FAIR   FAVORABLE

0   50   100

Typical Pattern of Vegetation Conditions in Southern Africa due to El Niño Related Drought

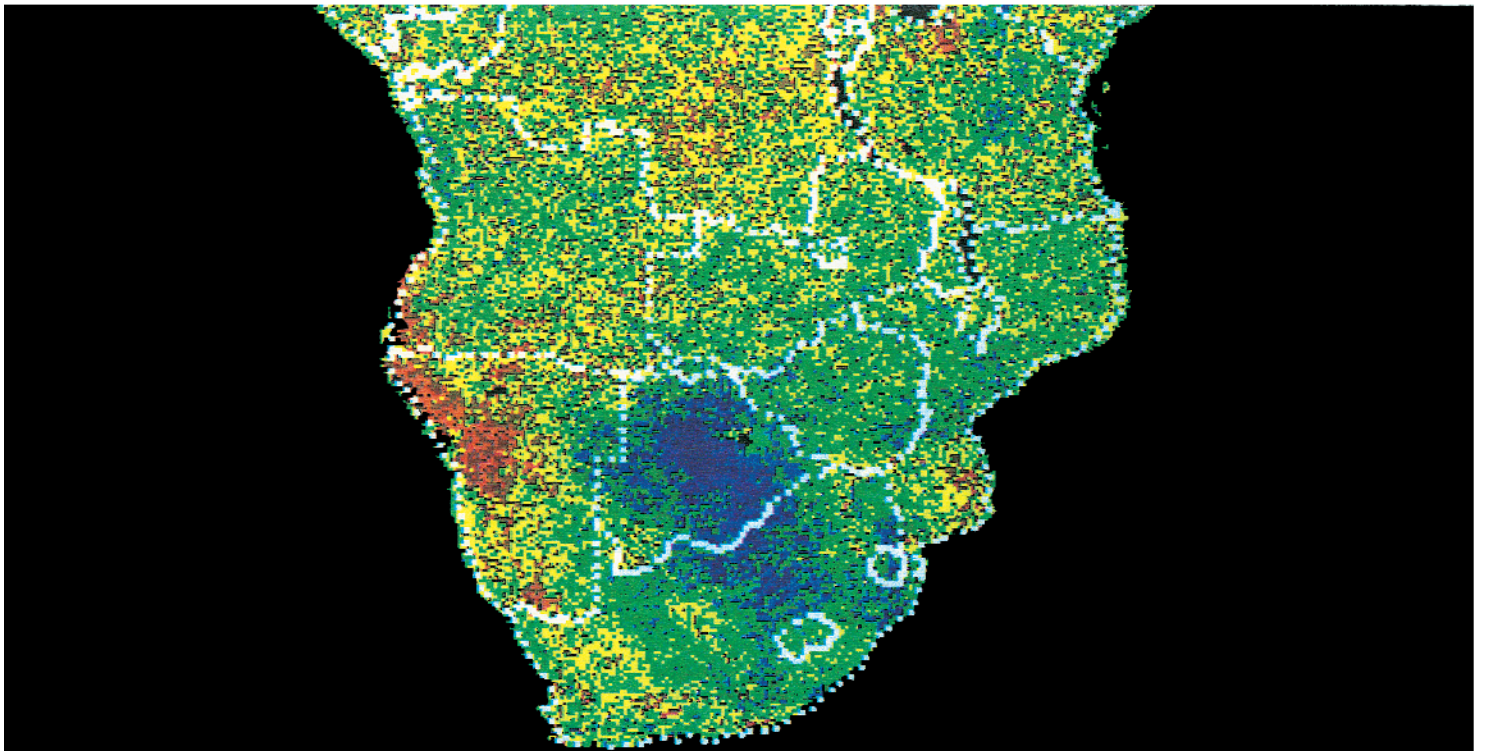The Advanced Very High Resolution Radiometer Sensor (AVHRR) carried by the National Oceanic and Atmospheric Administration's polar-orbiting satellites has the capability of identifying vegetation stress related to the environmental conditions. This is very useful for early drought detection, monitoring, and analysis of impact on agriculture. These features were used to project vegetation condition in the part of the world that is most vulnerable to drought during strong El Niño years.

El Niño is one part of a multi-year cycle of the interaction between the ocean and atmosphere. The second part is called La Niña. A typical characteristic of this cycle is emergence of a huge mass of warm water in the central and eastern Pacific during El Niño and cold during La Niña years. These shifts between warm and cold cycles occurs irregularly every three to five years and affects the environment of different areas around the world on a variety of time scales. One of the areas is Southern Africa, where during El Niño years rainfall reduce considerably leading to drought and severe vegetation stress while in La Niña years the effect is opposite.

The image on front shows average vegetation conditions in the countries of Southern Africa during the two El Niño (1986/87 and 1991/92), in comparison with two La Niña (1988/89 and 1995/96) years. These two-year anomalies are received from twelve years of AVHRR data. The typical patterns of vegetation condition are severe drought-related vegetation stress, especially in the most productive agricultural areas of Botswana, Zimbabwe, Lesotho, Republic of Southern Africa, and southern Mozambique. In the La Niña years only local droughts can be observed in the area. Time series analysis pattern indicate that the El Niño type of vegetation conditions in Southern Africa is persistent during the main growing season. The highest intensity is normally reached in February-March. The pattern of vegetation stress during El Nño years shown in the image might be observed in the first quarter of 1998 following a very strong 1997/98 El Niño.

October 27, 1997