CMA Operation and Products for Fire Monitoring

Summary and purpose of paper

In response to Action 32.18, this report briefs on operation of fire monitoring at CMA. Fire monitoring using meteorological satellite has become routine operation since 1987. Data inputs for fire monitoring come from FY-1D, FY-2C, NOAA satellites and EOS/MODIS. Fire monitoring products are generated covering China and adjacent areas in boundary countries. CMA provides 10,000 fire reports on average a year.

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Background

Forests cover extensive area of China. Main forests are located in northeast and southwest China where it is less populated. Meteorological satellites provide the efficient way to monitor the forest fires.

CMA has developed software for monitoring forest fires using the polar orbiting meteorological satellite inputs since 1980s, and successfully applied in several fire cases. Information about the fire happening and development are sent to relevant management authorities nationwide in timely manner. In 1987, forest fire monitoring became operational. Some staff members are dedicated to fire monitoring work data. CMA provides 10,000 fire reports on average a year.

Current Status of Fire Monitoring

1. Data inputs

At the present, data inputs for daily fire monitoring come from the following satellites: FY-1D, FY-2C, NOAA-12/16/17. EOS/MODIS data are sometime used when large fire happens.

2. Fire Searching Frequency and Region

Usually, searching for fire is carried out twice or three times every day. If a fire is spotted, intensive monitoring starts to track the fire's development day and night.

Firs searching area includes China and adjacent areas in boundary countries. The whole area is divided into 60 sub-areas of the size $5°\times5°$. If a fire is discerned in a sub-area, that area will be under intensive watch. Usually, a fire with the size of 0.3% of a pixel (1.1 km resolution at sub-point) can be detected under intensive monitoring.

Fire Products

Daily Monitoring Products

1. Fire Monitoring Image:

    Multi-channel composition image of $5°*5°$ to show blazing fires, smoke plume, and the area of fires.

2. Hot Spot Map:

    Fire spots overlaid on map.

3. Information on Each Hot Spot:

    Detailed information about the fire spot: location, number of pixels under fire, land usage, jurisdiction, etc.

Statistics Products

1. Hot Spot Distribution Map:

Hot spots sketched on map of a jurisdictional region for a certain period.

2. Hot Spot Frequency Statistics:

Statistics of detected hot spots in certain province, region or for certain types of land utilization (forest or grass land) in given period (month, quarter or year).