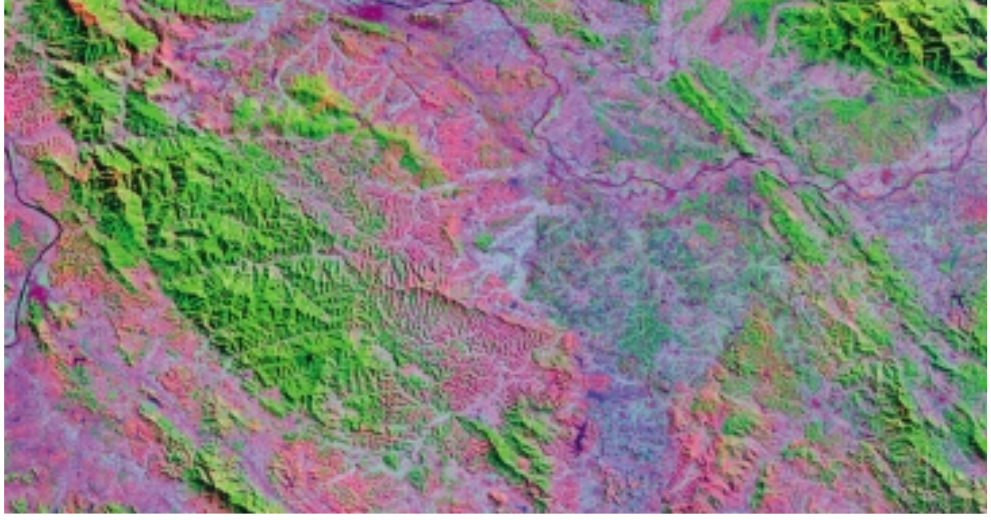
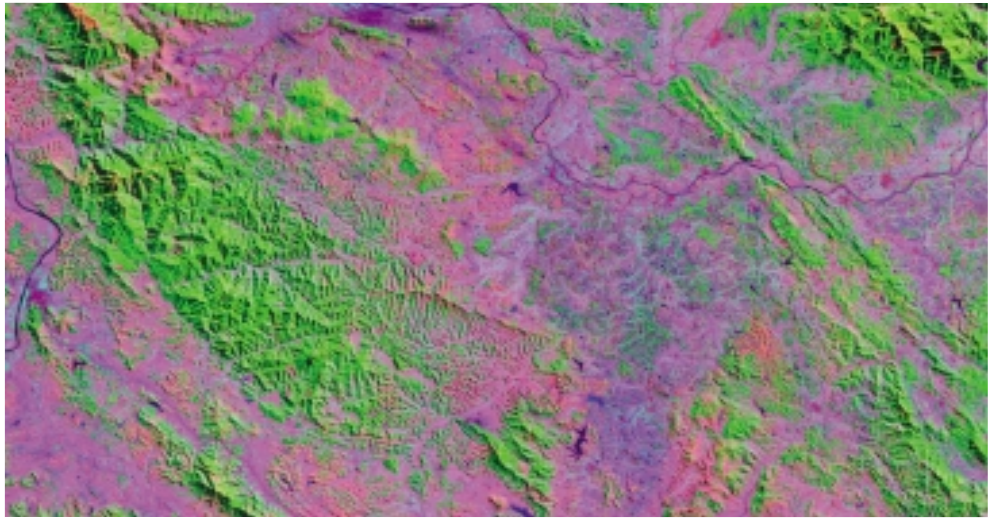


Images and maps of damage by pine caterpillar in Zhejiang Province

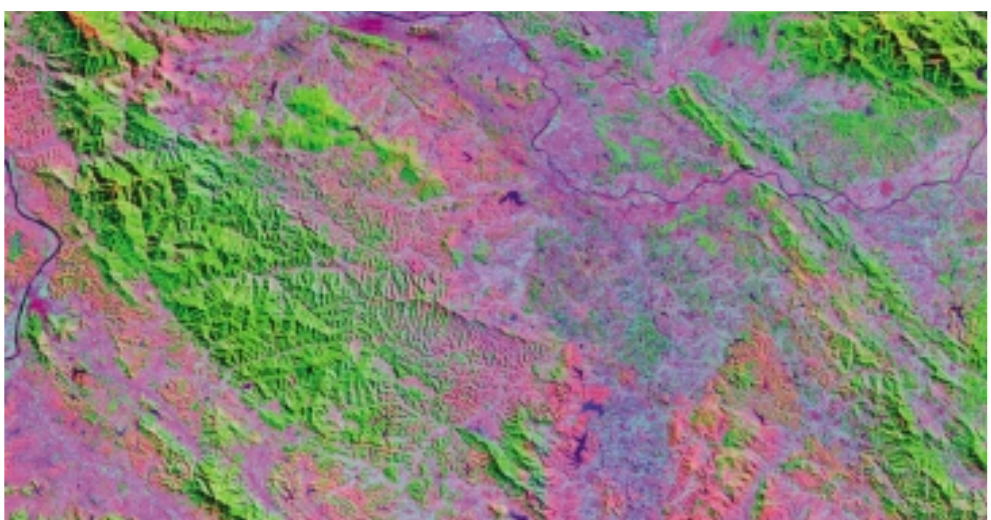




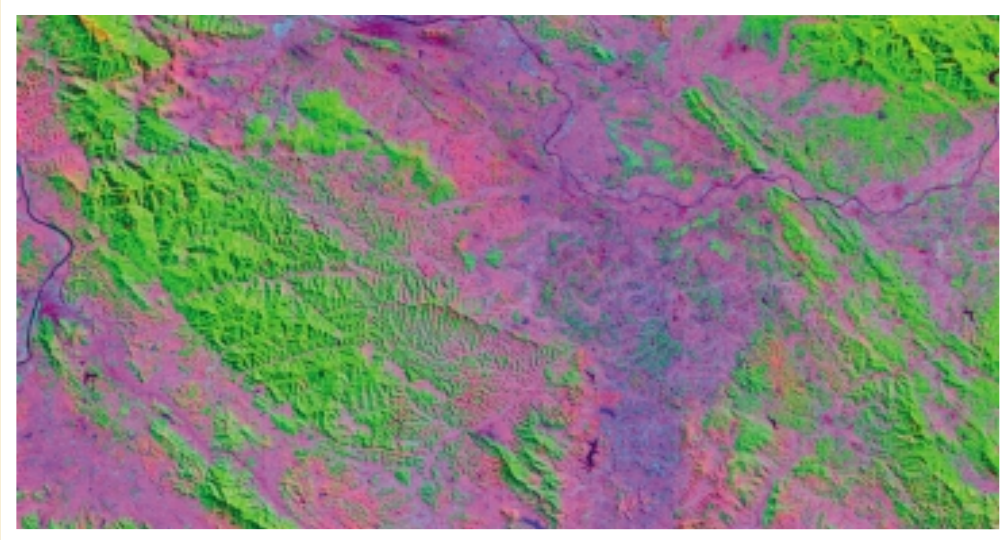
TM image in 1986



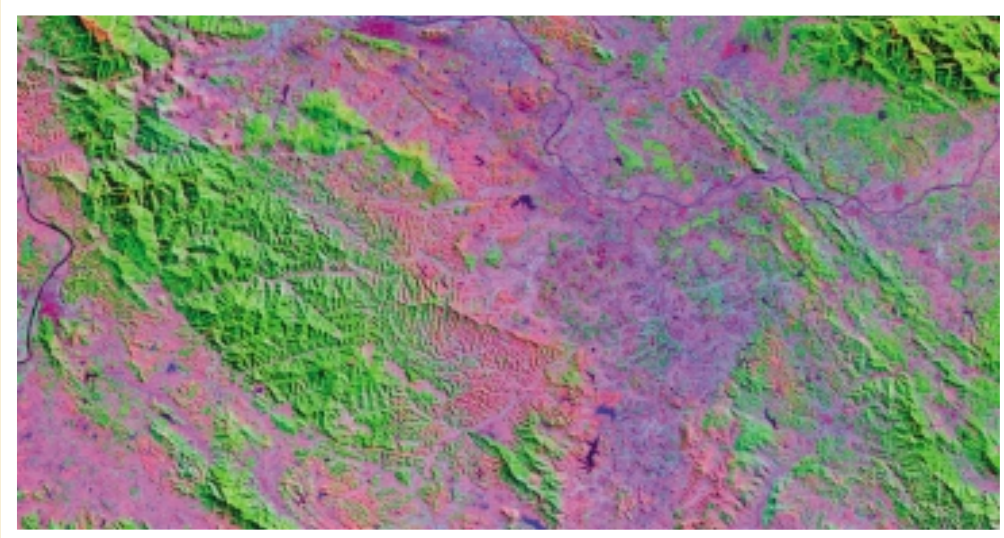
TM image in 1988



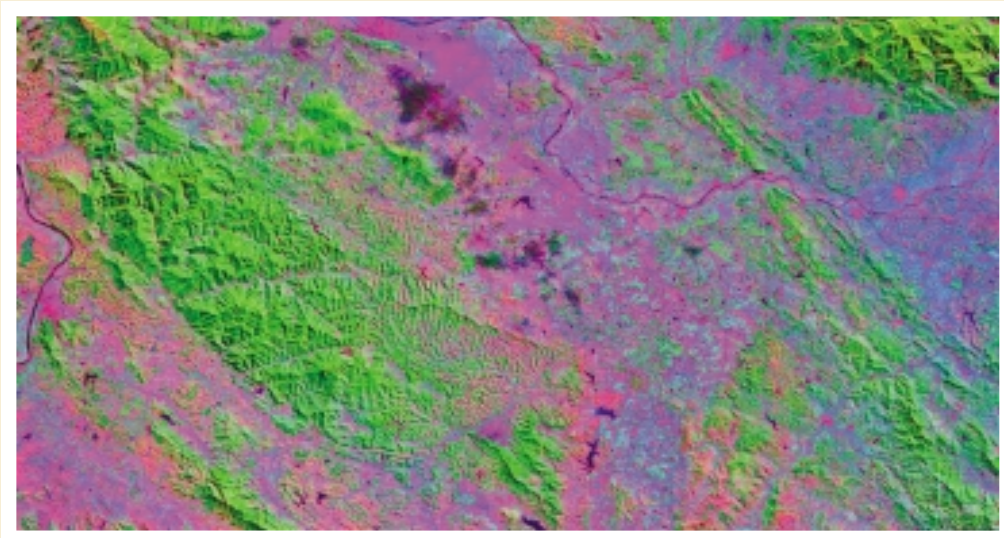
TM image in 1989



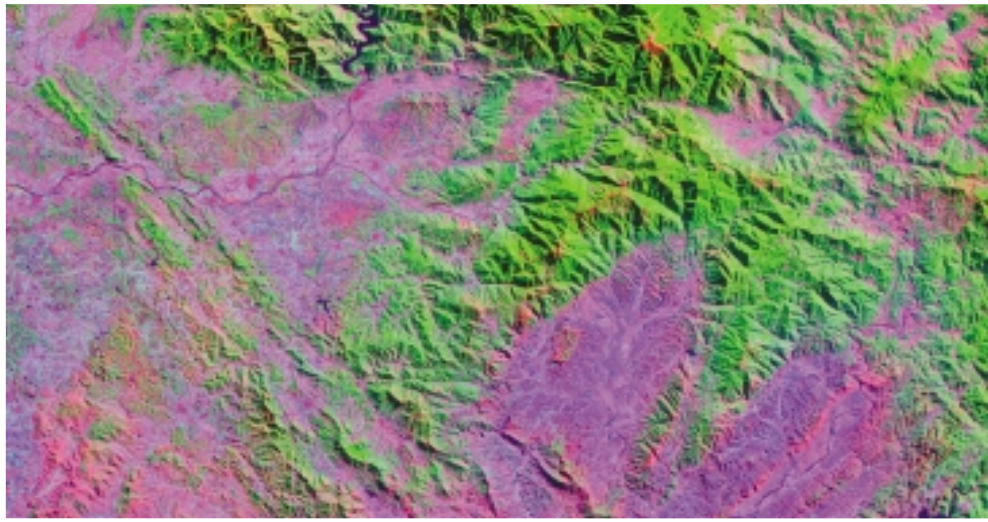
TM image in 1991



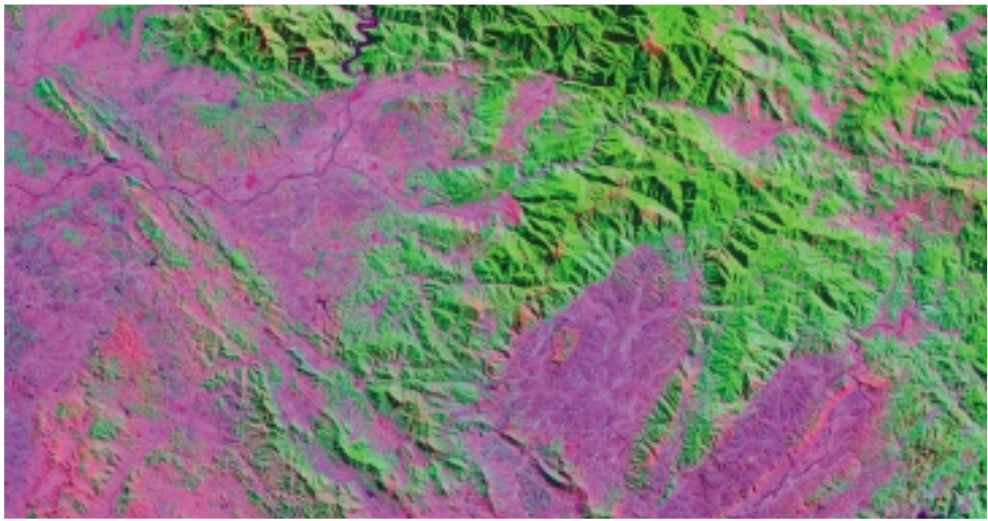
TM image in 1992



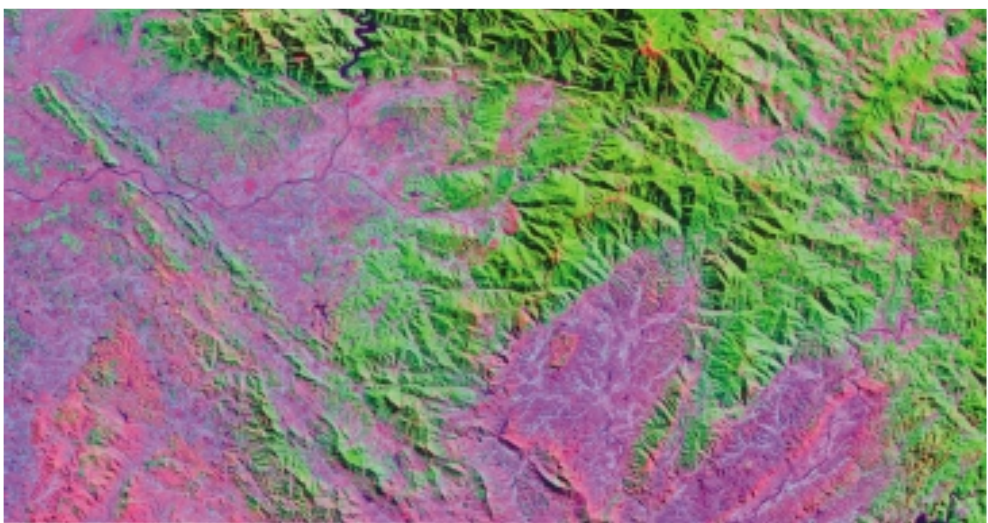
TM image in 1994



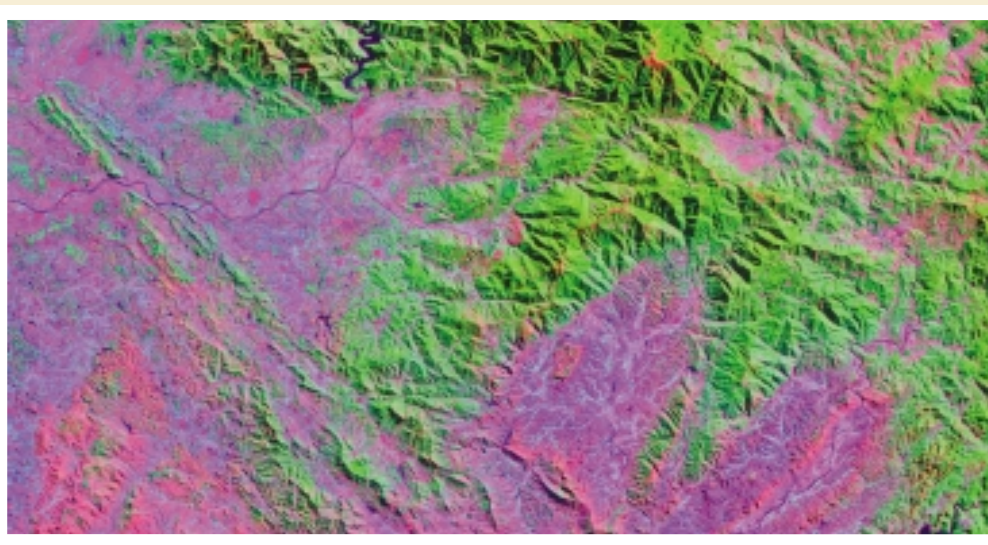
TM image in 1986



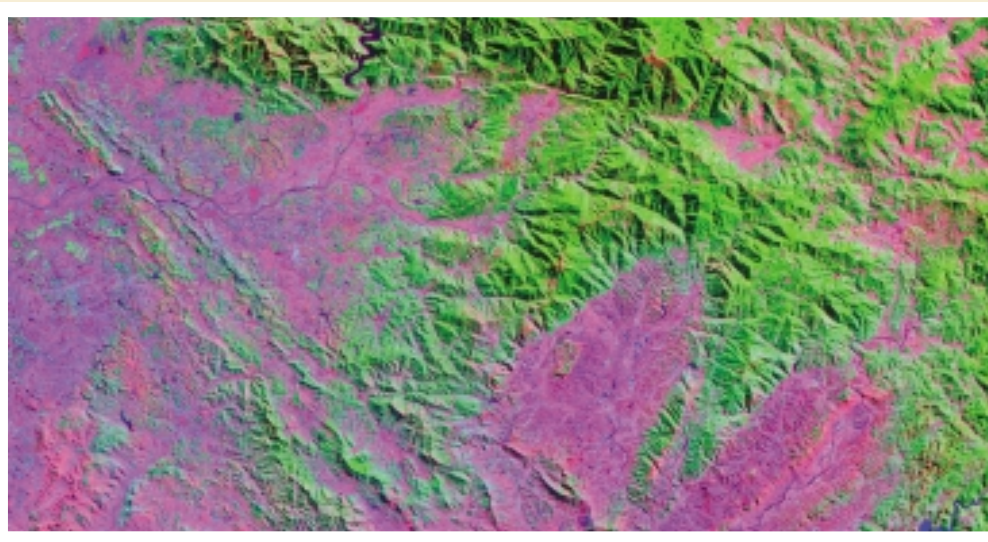
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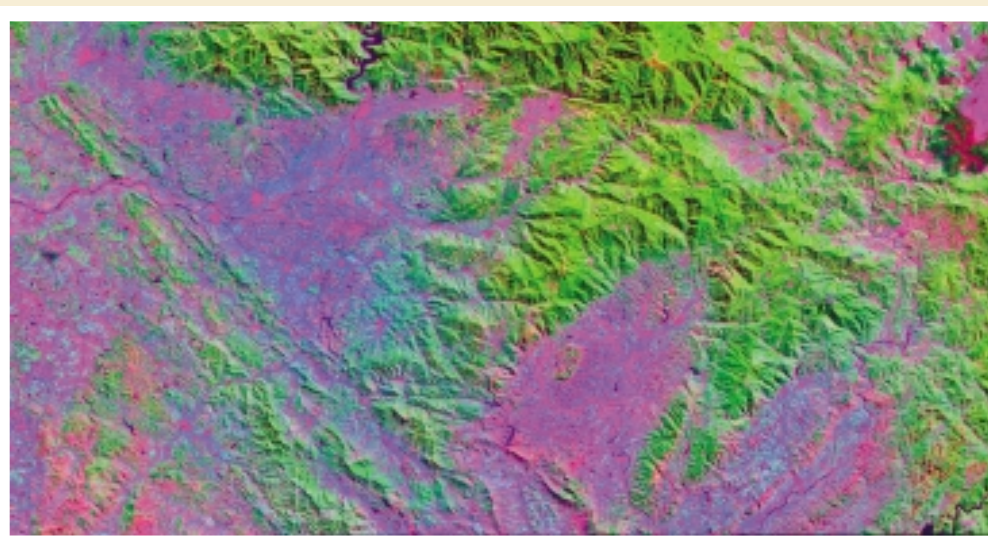
TM image in 1989



TM image in 1991



TM image in 1992



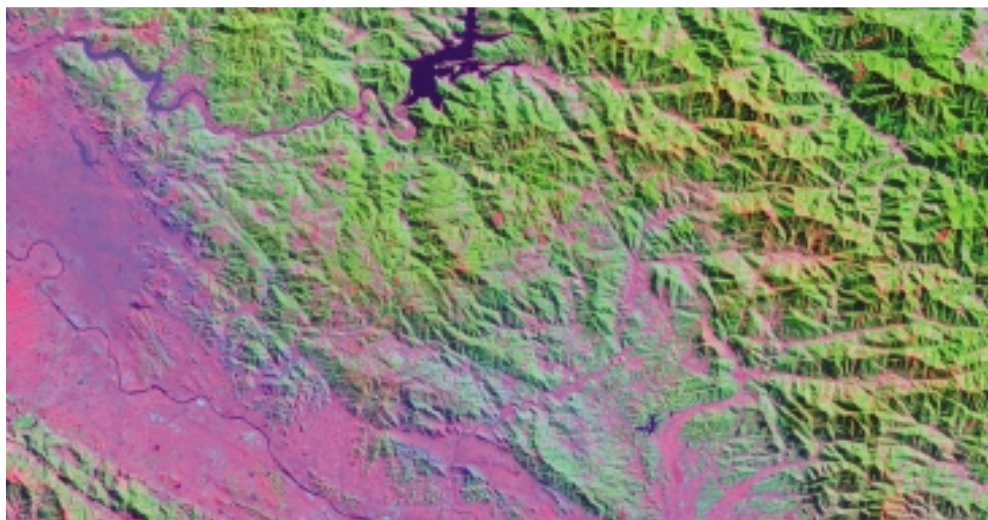
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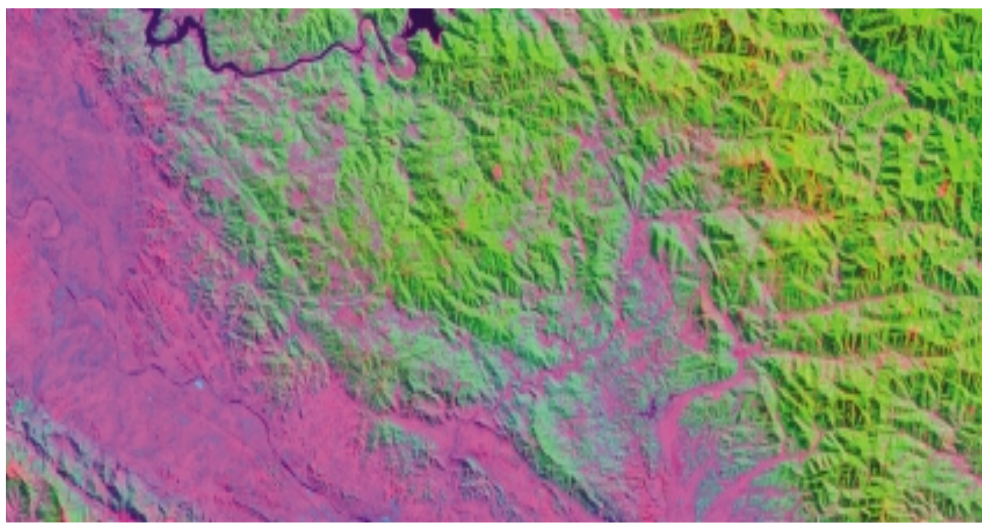
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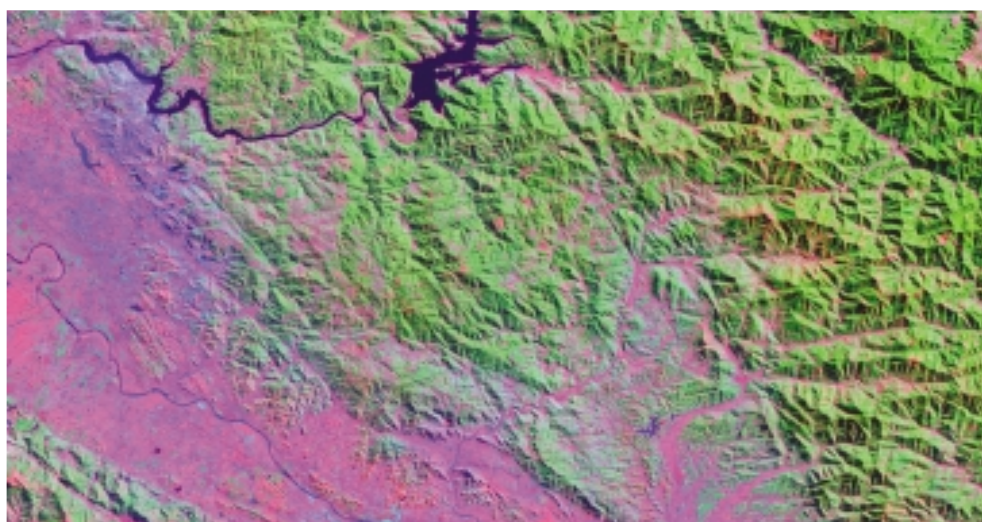
TM image in 1988



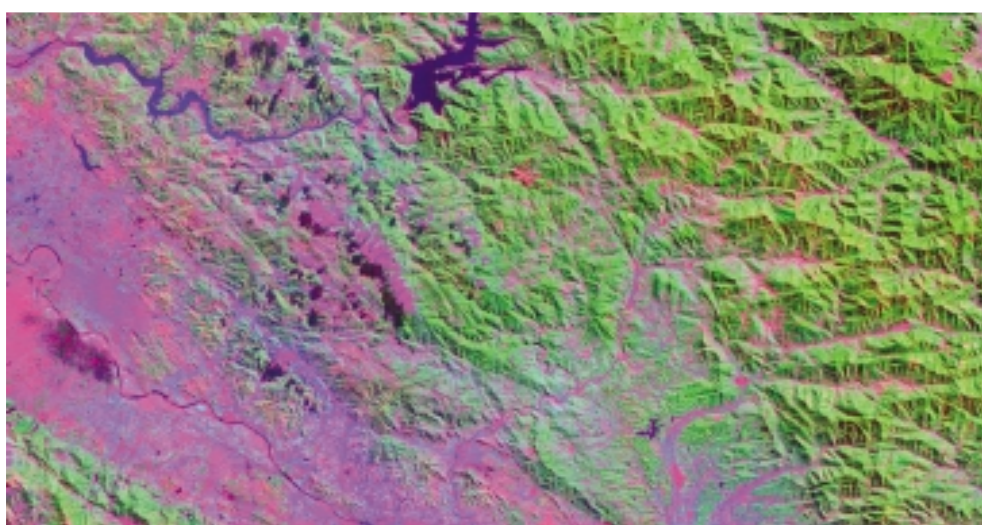
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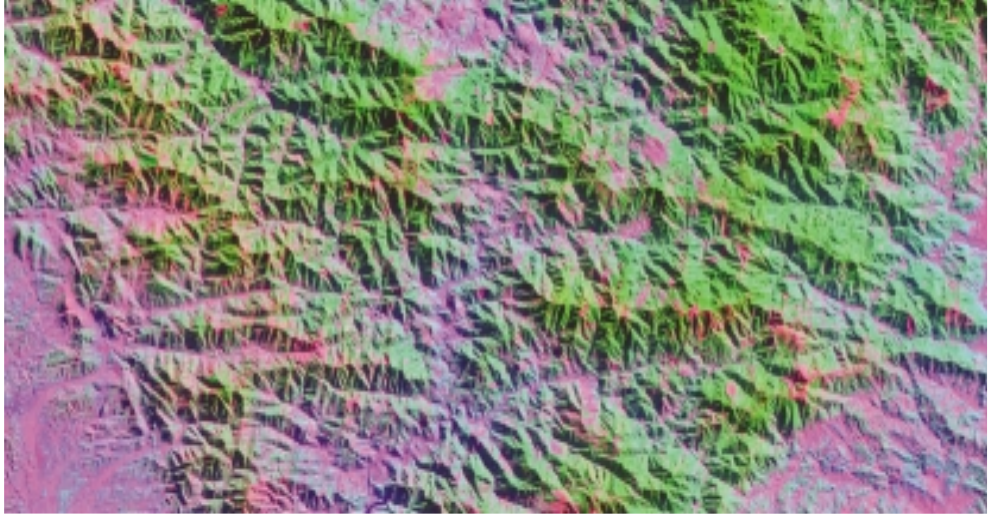
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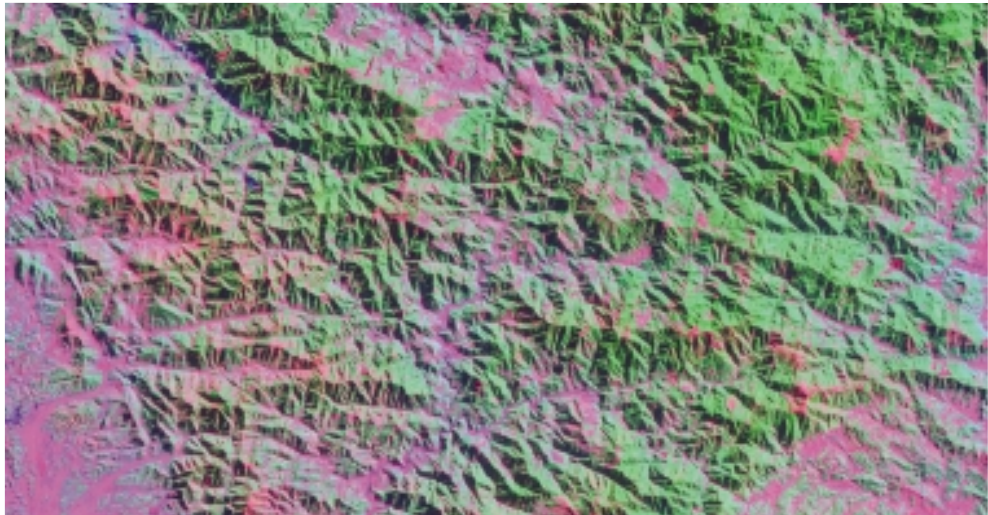
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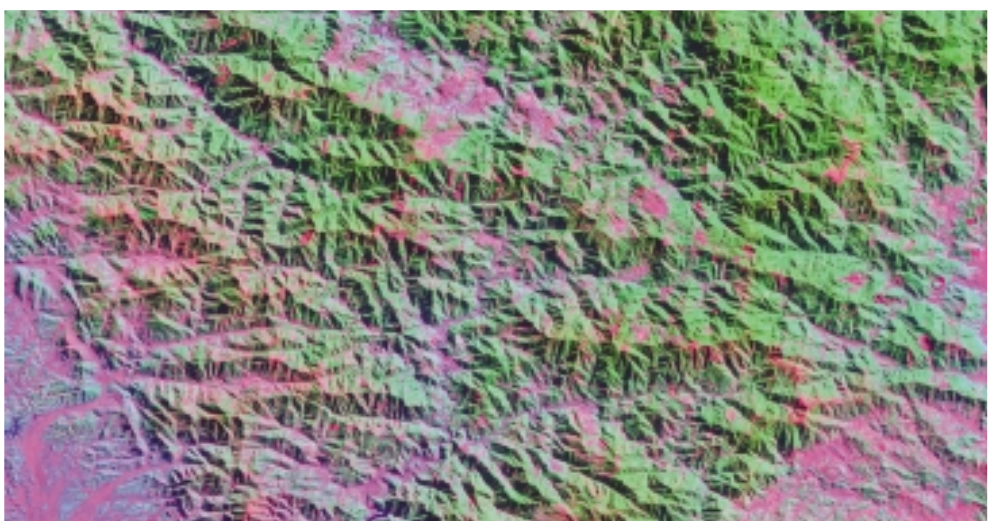
TM image in 1994



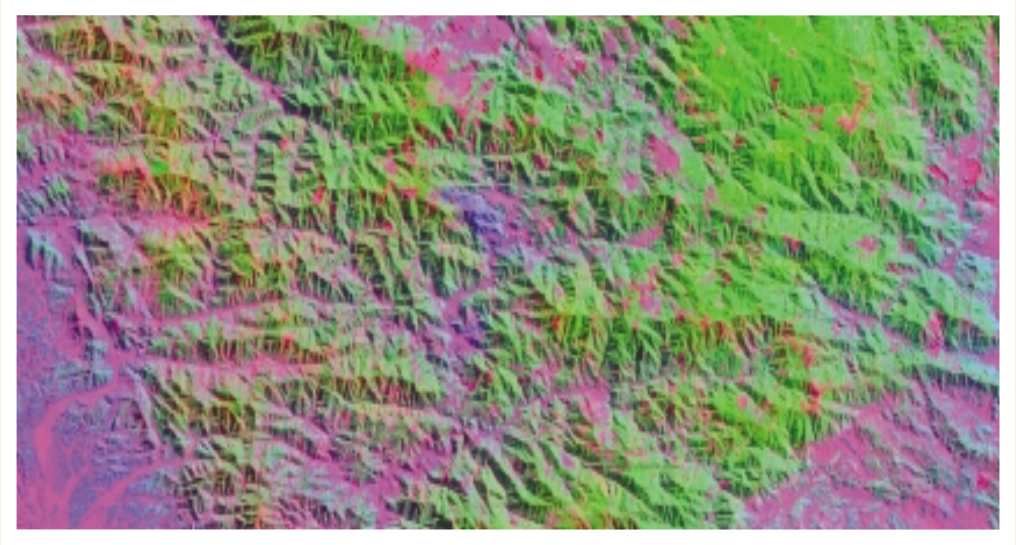
TM image in 1986



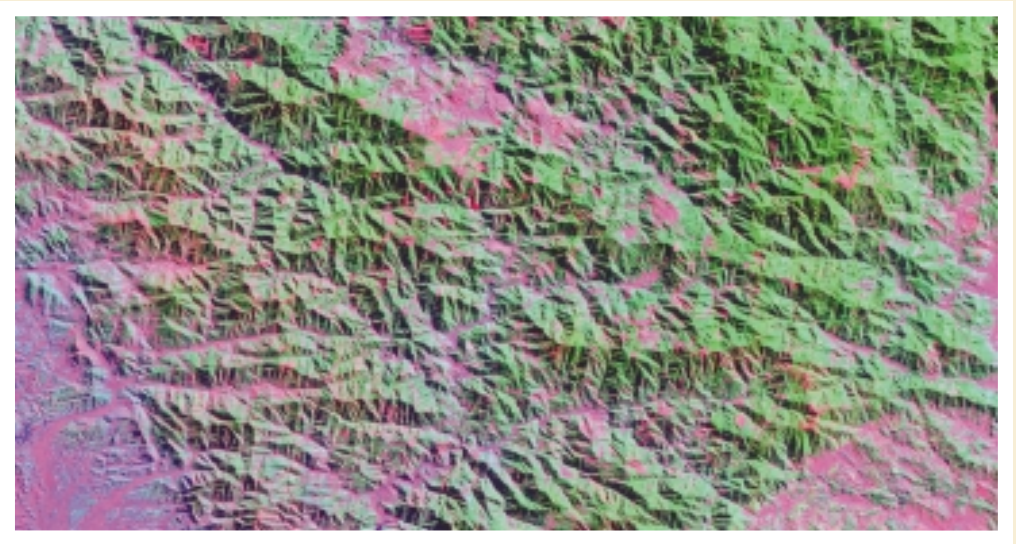
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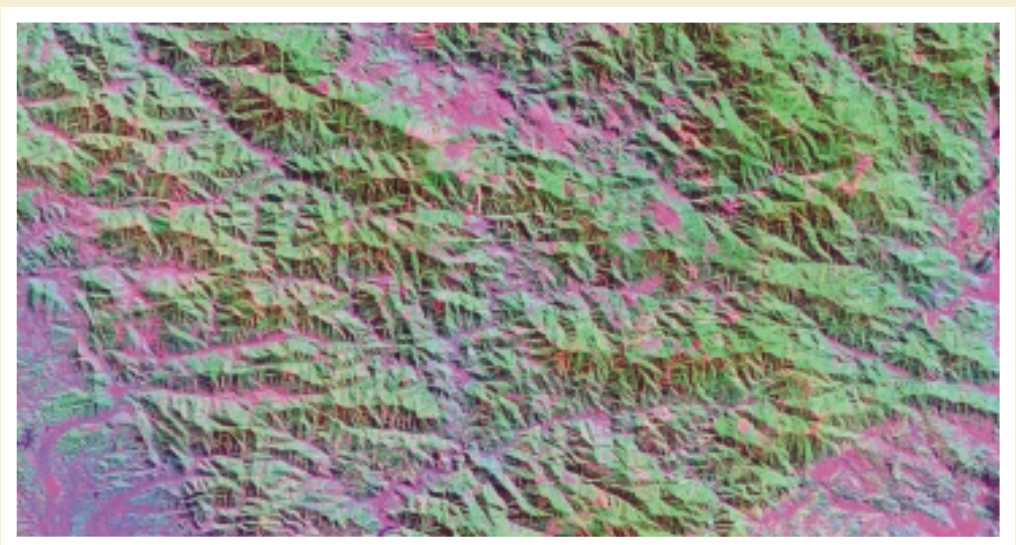
TM image in 1989



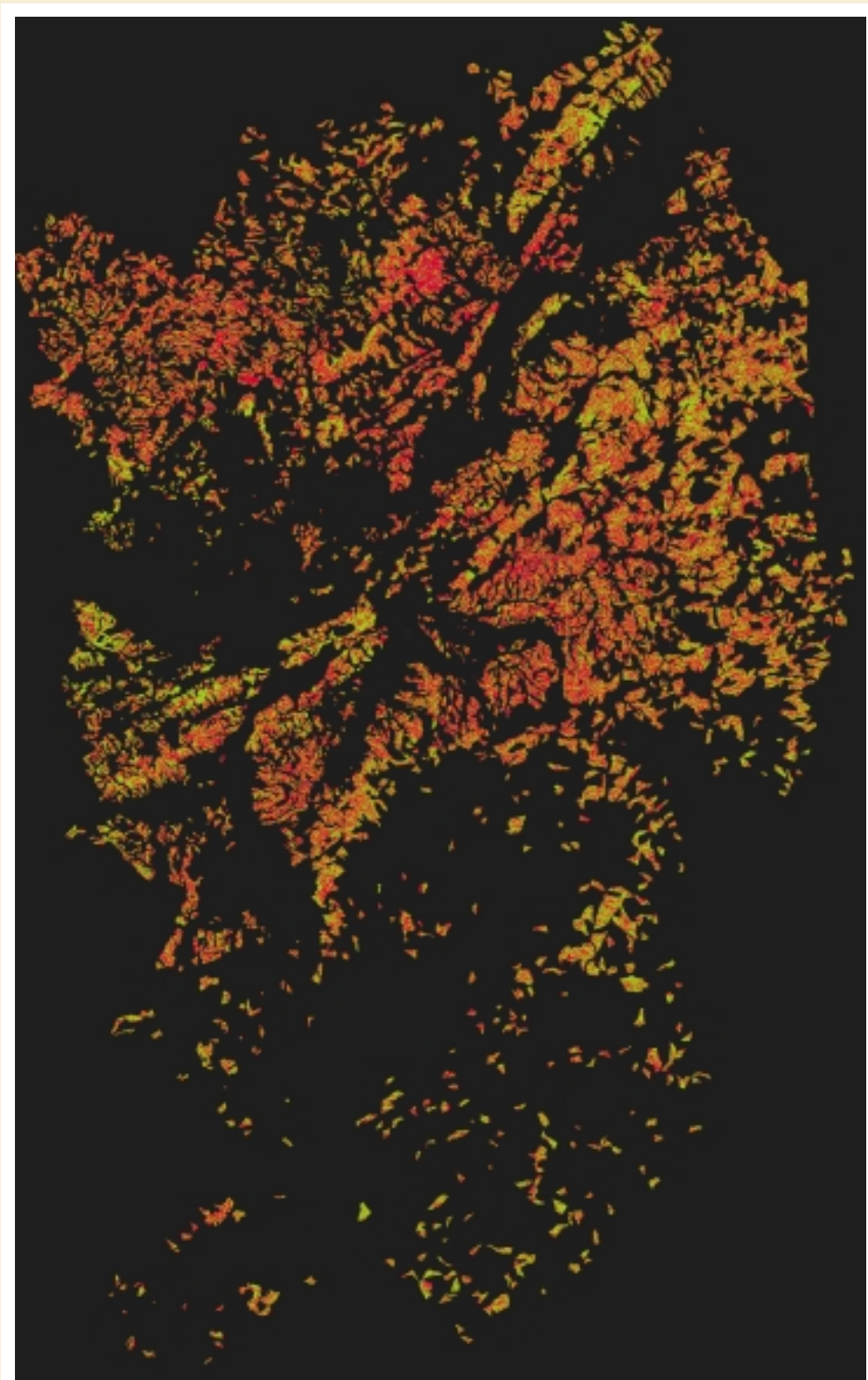
TM image in 1991



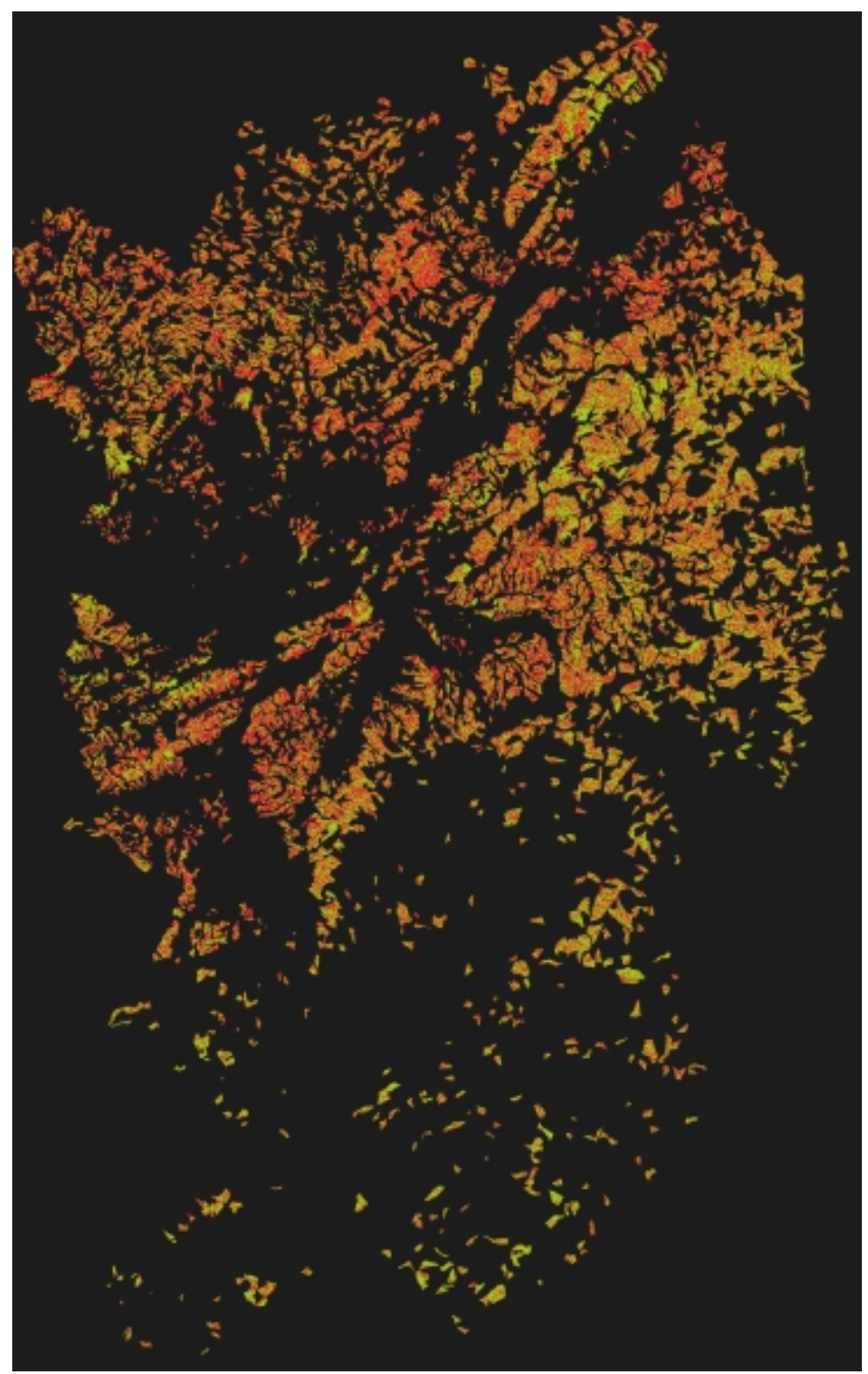
TM image in 1992



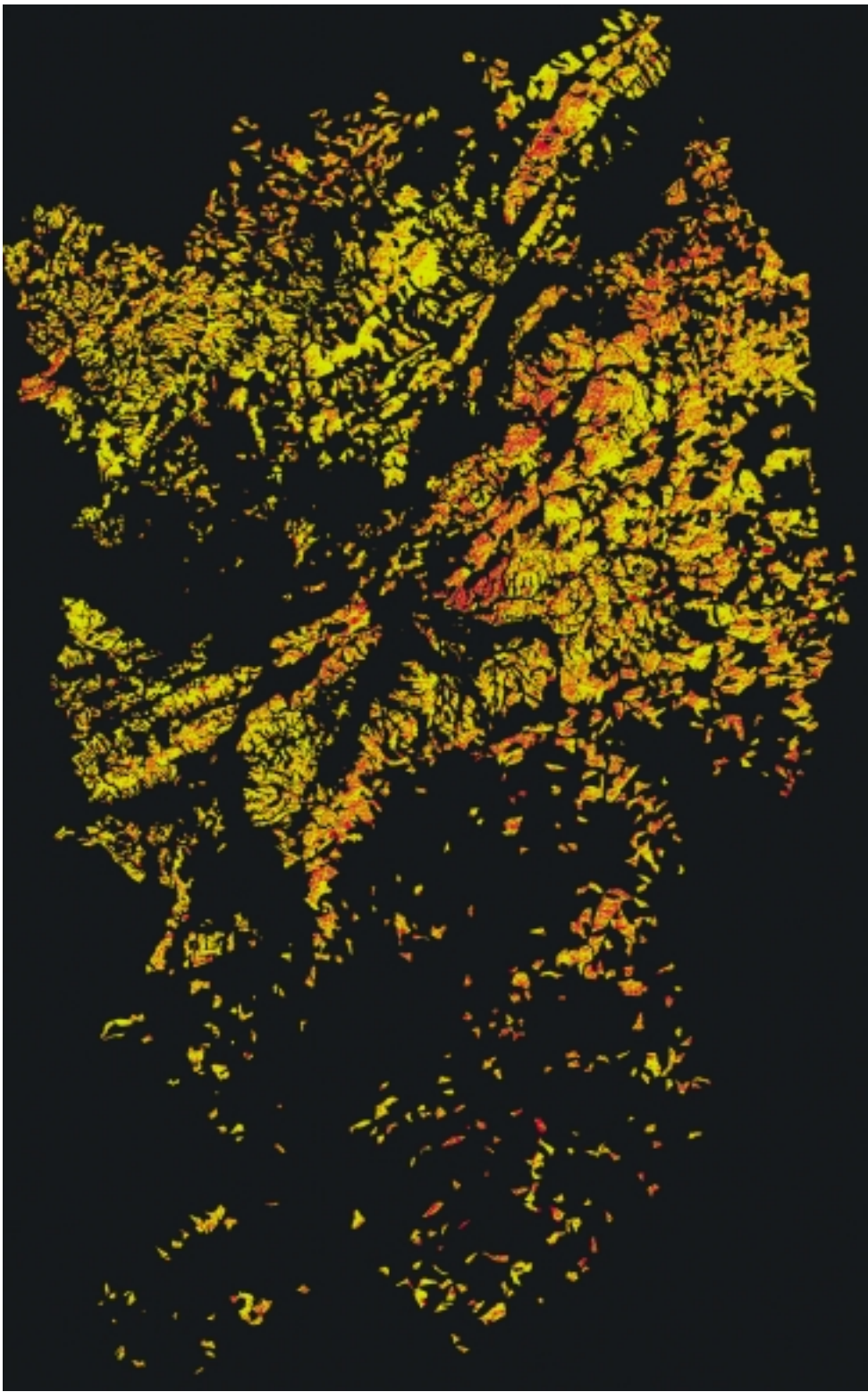
TM image in 1994



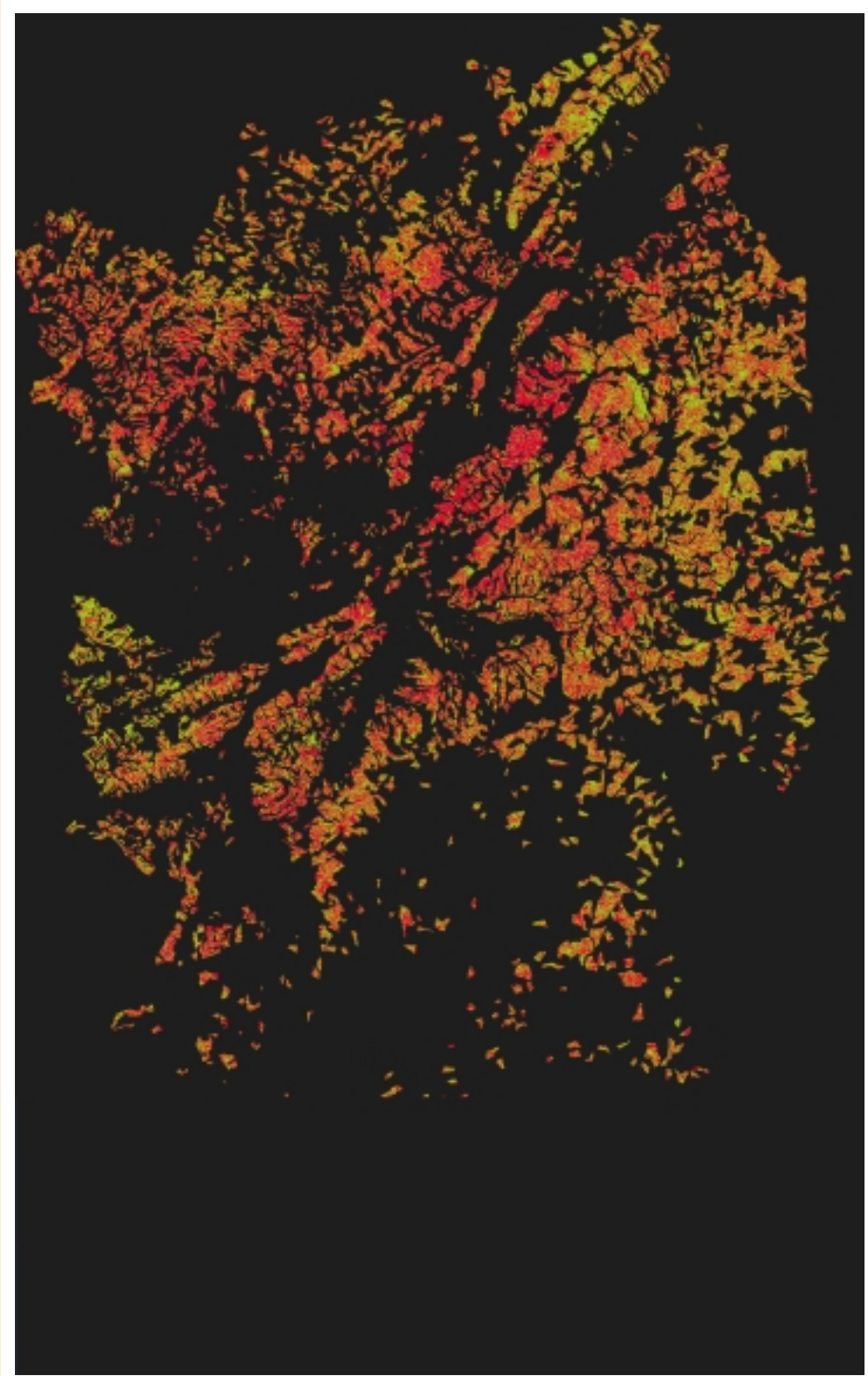
Forest health change map of Jiangshan County of Zhejiang Province in 1986 (Green- health forest, Yellow- around 30 of needle loss percentage, Blue- around 50 of needle loss percentage, Red- Larger than 70 of needle loss percentage)



Forest health change map of Jiangshan County of Zhejiang Province in 1988 (Green- health forest, Yellow- around 30 of needle loss percentage, Blue- around 50 of needle loss percentage, Red- Larger than 70 of needle loss percentage)



Forest health change map of Jiangshan County of Zhejiang Province in 1991 (Green—health forest, Yellow—around 30 of needle loss percentage, Blue—around 50 of needle loss percentage, Red—Larger than 70 of needle loss percentage)



Forest health change map of Jiangshan County of Zhejiang Province in 1992 (Green—health forest, Yellow—around 30 of needle loss percentage, Blue—around 50 of needle loss percentage, Red—Larger than 70 of needle loss percentage)

This group of images is situated at southwest Zhejiang Province, the center is about 118.5°E, 28.5°N. It has the subtropical climate with mason pine(*Pinus massoniana*) as the major tree type. Mason pine caterpillars(*Dendrolimus punctatus*) usually happened two or three generations and led to large areas of hazard and damage.

We choose four groups of images of six continuous years to analyze and compare the process of forest quality change. In the composite image, the green color represents the healthy forest, the red color represents the serious damage area of more than 70% needle loss, burnt area or clearcut area. The red orange color represents hazard areas with less than 50% needle loss. In 1992, large areas of mason pine caterpillars(*Dendrolimus punctatus*) happened and caused great damage. By comparing the continuous images, the direction of changes can be clearly seen. If the early pest spot can be monitored and measures can be carried out, the hazard loss can be lowered, and the forest resources can be protected.

In all, TM data has been successfully used in monitoring some defoliator in China.