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Crop pests and diseases monitoring and forecasting **Global** China, America, Brazil, Argentina

2019

Minor infestation of pest and disease on soybean

Overview

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as GF series and HJ series in China, MODIS and Landsat series in US, Sentinel series in EU), and self-developed models and algorithms for crop pest and disease monitoring and forecasting, AIR (RADI) constructed the 'Crop pests and diseases monitoring and forecasting system', which could regularly release thematical maps and reports on main crop pests and diseases Global.

In 2019, soybean cyst nematode (*Heterodera glycines Ichinohe*), soybean rust (*Phakopsora pachyrhizi Sydow*), soybean aphid (*Aphis glycines Matsumura*) and soybean bollworm (*Helicoverpa armigera*) slightly occurred in four main soybean production countries, including America, Brazil, Argentina, and China.

Soybean diseases

The total soybean area in China is about

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8.9 million hectares, the area affected by soybean cyst nematode accounts for 8.1% of the total soybean areas, with the disease mainly occurred in northwest Heilongjiang, north Shandong and central Henan. The distribution and statistics of soybean cyst nematode in China are shown in Figure 1 and Table 1. In America, the total soybean area is about 30.2 million hectares, the area affected by soybean cyst nematode accounts for 12.3% of total soybean area, mainly occurred in most of Iowa, central and north Nebraska, and south Minnesota. The distribution and statistics of soybean cyst nematode in America are shown in Figure 2 and Table 1. The total soybean area in Brazil is about 36.5 million hectares, the area affected by soybean rust accounts for 3.1% of the total soybean areas, mainly occurred in most parts of Rio Grande do Sul, east and west

Santa Catalina, west Parana, and northeast Mato Grosso do Sul. The distribution and statistics of soybean rust in Brazil are shown in Figure 3 and Table 1. The total soybean area in Argentina is about 17.3 million hectares, the area affected by soybean rust accounts for

4.3% of the total soybean areas, mainly occurred in the south and central Buenos Aires, north Cordoba, and central Salta. The distribution and statistics of soybean rust in Argentina are shown in Figure 4 and Table 1.

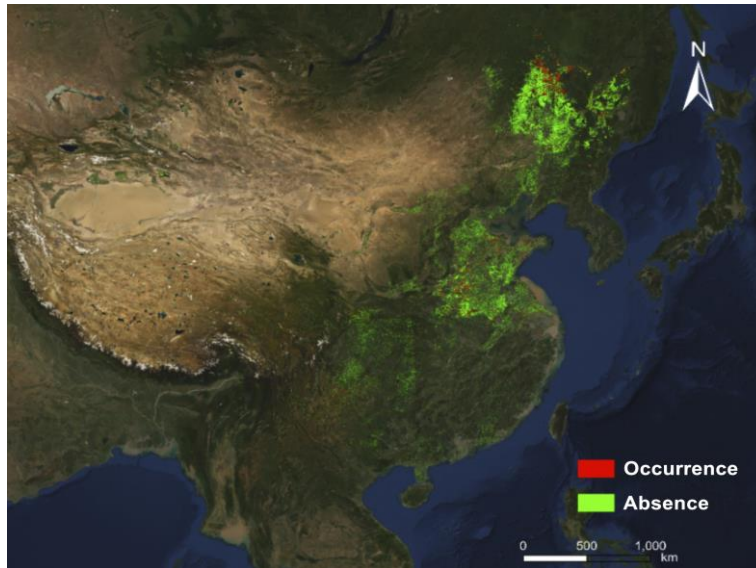


Figure 1 Distribution of soybean cyst nematode in China (2019)

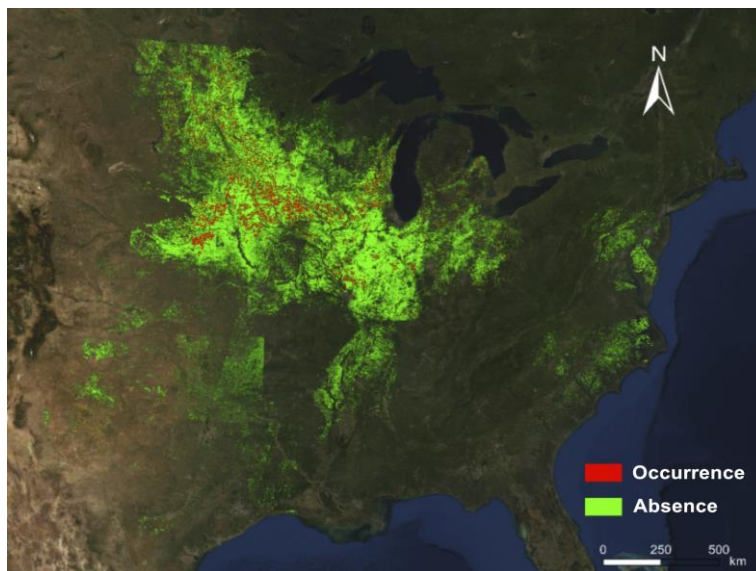


Figure 2 Distribution of soybean cyst nematode in America (2019)

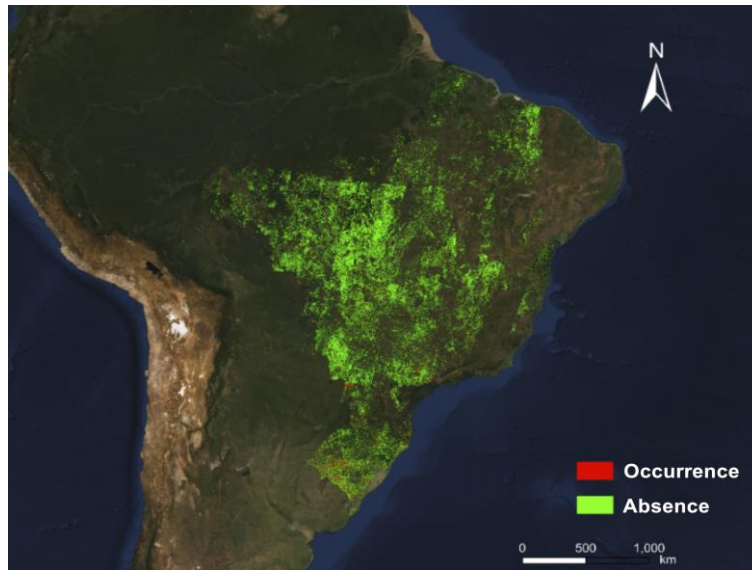


Figure 3 Distribution of soybean rust in Brazil (2019)

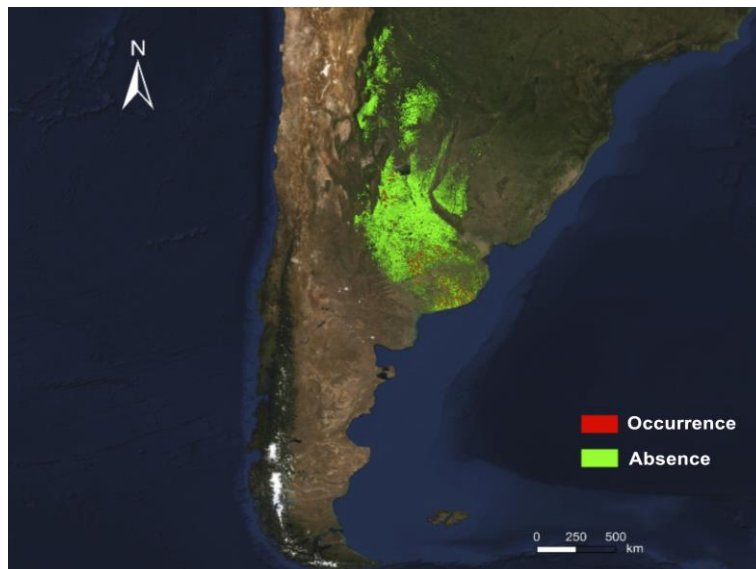


Figure 4 Distribution of soybean rust in Argentina (2019)

Soybean pests

The area affected by soybean aphid accounts for 3.5% of the total soybean areas in China, mainly occurred in west Heilongjiang, north Henan, north Shandong, central Anhui and south Jiangsu. The distribution and statistics of soybean aphid in China are shown in Figure 5 and Table 1. In America, the area affected by soybean aphid accounts for 2.5% of the total soybean areas, mainly occurred in

central and southeast Minnesota, central North Dakota, and northeast South Dakota. The distribution and statistics of soybean aphid in America are shown in Figure 6 and Table 1. In Brazil, the area affected by soybean bollworm accounts for 5.2% of the total soybean areas, mainly occurred in south Mato Grosso do Sul, central and east Mato Grosso and north Paraná. The distribution and statistics of soybean

bollworm in Brazil are shown in Figure 7 and Table 1. The area affected by soybean bollworm accounts for 5.9% of the total soybean areas in Argentina, mainly occurred in

south and east Cordoba, south Santa Fe, north Buenos Aires and central Entre Rios. The distribution and statistics of soybean bollworm in Argentina are shown in Figure 8 and Table 1.

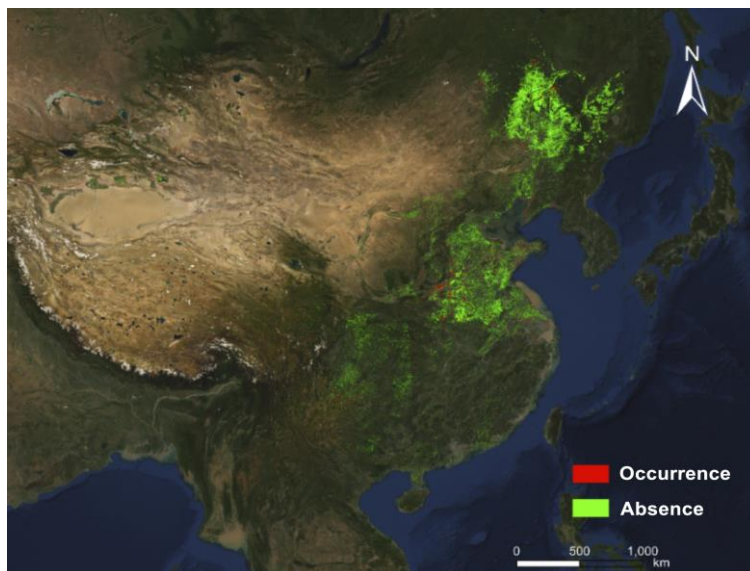


Figure 5 Distribution of soybean aphid in China (2019)

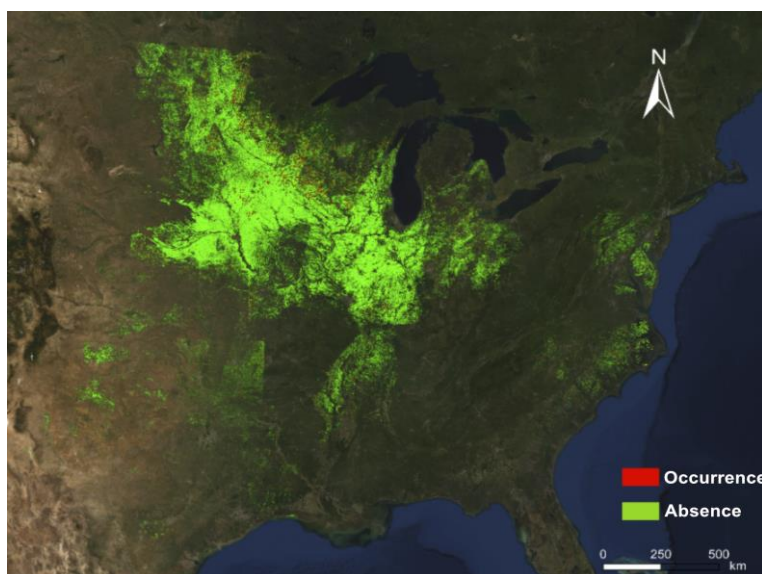


Figure 6 Distribution of soybean aphid in America (2019)

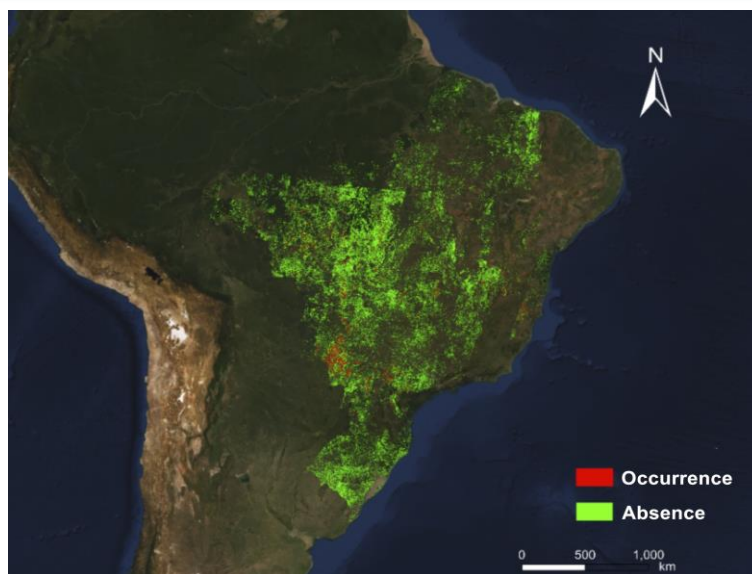


Figure 7 Distribution of soybean bollworm in Brazil (2019)

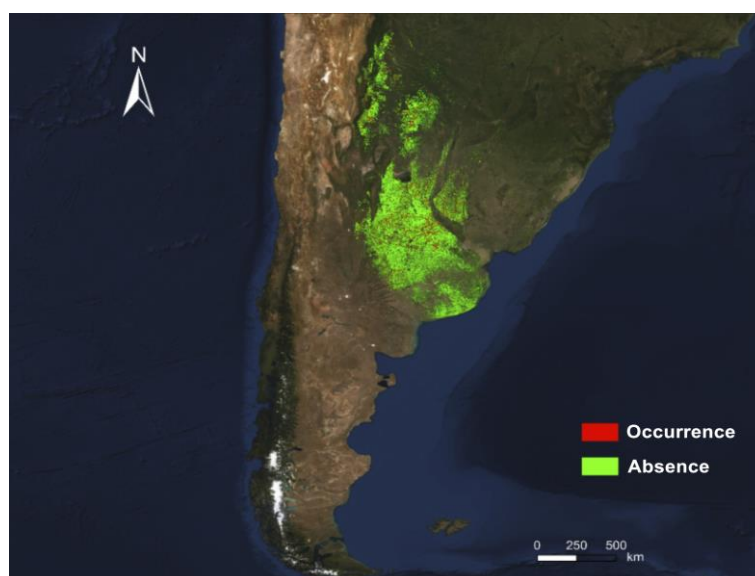


Figure 8 Distribution of soybean bollworm in Argentina (2019)

Table 1 Statistics of soybean diseases and pests in China, America, Brazil and Argentina (2019)

Rice production countries	Disease and pest occurrence ratio / %				Total planted area/ million hectares
	Soybean cyst nematode	Soybean aphid	Soybean rust	Soybean bollworm	
China	8.1	3.5	/	/	8.9
America	12.3	2.5	/	/	30.2
Brazil	/	/	3.1	5.2	36.5
Argentina	/	/	4.3	5.9	17.3

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The crop pests and diseases monitoring and forecasting system are available under:

<http://www.rscropmap.com/>

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The geographic borders are purely a graphical representation and are only intended to be indicative. The boundaries do not necessary reflect the official position.

Mission statements: As the science and knowledge service, the Sino-UK Crop Pest and Disease Forecasting & Management Joint Laboratory is to support independent evidence for crop monitoring.

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