

NATURE



SATELLITES REVEAL THE BIG PICTURE OF PLANET EARTH



find out more

SENTINELS

EXPLORING NATURE FROM SPACE

Executive producers: **Sabine Holzer, Walter Köhler**
1x50 min., 4K, 5.1 + Stereo



From our eyes, positioned barely two metres from the ground, it's hard to really appreciate how our planet works, or how some creatures became truly global long before air travel shrank our world.

But the Earth is ringed by satellites that send back the big picture from space, while scientists developed new technology, including such tiny GPS tags, they can even track individual insects over long distances. Together, these techniques reveal how our planet works over the course of a year and how animals make use of seasonal global patterns. In the last few years, these sentinels in space have revealed totally unsuspected stories from the natural world.

As the seasons turn, we can watch changes in plant productivity with instruments such as SeaWiFS and MODIS. We can see the changing rainfall patterns, as the Intertropical Convergence Zone moves north and south of the equator, bringing seasonal monsoons and a flush of new growth. We can follow GPS tagged animals as they track these changes.

Painted lady butterflies migrate north from East Africa breeding on fresh growth. They'll eventually reach as far as Svalbard – a butterfly that shares its world with both lions and polar bears.

But some animals make much longer journeys. Every year, Arctic terns follow ocean productivity from the far north to Antarctica, some making annual trips of 80,000 km. And short-tailed shearwaters migrate from Australia to the Bering Straits near Alaska, following patterns of ocean currents that we can see from space.

Terrestrial ecosystems are hard enough to under-

stand, but the ocean world was a real mystery – until recently. Satellites measure distances with extraordinary accuracy revealing complex patterns in sea surface height. This reflects the topography of the ocean floor, giving a broad map of mountains, valleys and plains hidden beneath kilometres of seawater. And data from tagged animals shows how humpback whales migrate along underwater mountain ranges, seeking huge canyons, far bigger than anything above the waves, where upwellings create rich feeding grounds.

We've also discovered the largest known aggregations of great white sharks – every year, huge numbers of sharks migrate in a remote spot in the middle of the Pacific. Originally dubbed the 'Great White Café' this patch of ocean is a barren desert, so they're not coming to feed. Maybe they gather for sex – not so much a café as a singles bar. Even with all our technology, some mysteries remain ... at least for now.

A production of Terra Mater Studios

