



STEPHANE CORVAJA - ESA

Over the past five years, 18 Galileo satellites have been launched into orbit.

► for navigation-satellite signals. A European experiment called Geros-ISS, which Wickert is leading, aims to fly a receiver on the International Space Station in 2019. The experiment would measure navigation-satellite signals as they reflect off the sea. By combining data from Galileo, BeiDou, GPS and GLONASS, it could map the oceans at

spatial scales down to a few kilometres every four days or less. Many ocean phenomena, such as eddies, occur at these scales, so better maps would help to improve weather and climate-change models.

A fleet of receivers in space could provide even finer resolution. In a step in that direction, on 15 December NASA launched its

own ocean-reflection research mission, the Cyclone Global Navigation Satellite System. A fleet of eight microsats, each carrying four navigation-satellite receivers, will measure wind speeds and ocean roughness in the eyes of storms at unprecedented resolutions of a few kilometres every few hours. Chris Ruf, Cyclone's principal investigator and a remote-sensing scientist at the University of Michigan in Ann Arbor, says that the first mission will use GPS only, but he is keen to integrate data from Galileo and BeiDou in follow-ups.

Much research on fusing signals from navigation-satellite systems is taking place under a federation of more than 200 agencies, universities and research centres. Montenbruck, who heads this effort, cautions that it may take more than five years after Galileo and BeiDou enter full service before scientists can exploit their possibilities completely. "Today's use of GPS benefits from 30 years of experience and an excellent understanding and characterization of all the dirty details," he says. "All that still needs to be carried out for Galileo and BeiDou." ■

POLICY

Major rethink for outbreak response

World Health Organization aims to prevent crises similar to the West African Ebola epidemic.

BY ERIKA CHECK HAYDEN

Three years after the start of the world's worst Ebola epidemic, the World Health Organization (WHO) has created a programme to improve its response to disease outbreaks and to prevent another such calamity.

In June, WHO director-general Margaret Chan named medical epidemiologist Peter Salama to lead a new health-emergencies

programme intended to streamline the agency's response to crises. As part of that programme, the WHO has launched the Emerging Diseases Clinical Assessment and Response Network (EDCARN) to provide guidance on how to care for people during disease outbreaks.

Global-health experts say that the changes are a step in the right direction, but both developing and wealthy nations must do much more to avert another devastating epidemic. Some are also concerned that the WHO programme

will have trouble getting the funding it needs to succeed, because of a lack of monetary support from member nations.

"African countries are still so dependent on international and global outfits that the return of Ebola or any other disease will be another déjà vu of national unpreparedness," says virologist Oyewale Tomori at Redeemer's University in Ede, Nigeria.

Tomori says that many developing nations still don't have sufficient capacity for recognizing and responding to an emerging infectious disease.

BUILDING A BRIDGE

The WHO's new programme aims to strengthen local health systems and to bridge global, organizational and governmental efforts to prevent the next outbreak. Daniel Bausch, EDCARN's technical lead, says that the network aims to fill huge gaps exposed during the Ebola crisis: a lack of knowledge about how best to care for people who have such serious diseases, and a shortage of physicians and experts who are prepared to provide that care.



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CERN

“Clinical management of patients during infectious-disease outbreaks has been one of the neglected areas of public health,” Bausch says. “We’ve realized that it’s one of the many areas where international support is extremely important.”

So EDCARN is bringing together specialists in diseases that are likely to spark outbreaks — including Ebola, Middle East respiratory syndrome (MERS) and Crimean–Congo haemorrhagic fever. These people could be deployed to affected areas along with nurses, logistics experts and infection-control specialists to advise non-governmental agencies, governments and others on the ground who would be caring for patients.

The hope is that this will prevent some of the problems with patient care and health-worker protections seen in the Ebola epidemic, in which many local and foreign health workers were among the 11,310 who died.

FUNDING WORRIES

Public-health policy analysts, such as Lawrence Gostin at Georgetown University in Washington DC, are optimistic about EDCARN. “I think it is a helpful initiative, and is in line with some of the ideas put forward by the Ebola commissions,” says Gostin, who served on two of the five international panels that have recommended major reforms to the global-health



A health worker disinfects a corpse in Monrovia, Liberia, during the recent Ebola outbreak.

system in the wake of the Ebola crisis.

Other health initiatives that were started in the aftermath of the Ebola epidemic have run into problems, which have tempered expectations for EDCARN. A US-led effort to boost domestic health systems has met with local resistance, and a WHO-led programme with similar goals does not have enough long-term

funding to keep going, Gostin says.

To succeed, the WHO’s new health-emergencies programme must raise US\$485 million for the 2016–17 fiscal year, and is currently only 56% funded. Gostin hopes that stinginess among the WHO member countries won’t doom the fledgling attempts to head off another crisis. ■

CORRECTION

The News story 'Major rethink for outbreak response' (*Nature* **540**, 494–495; 2016) stated that a funding shortfall pertained to EDCARN. But it is the overarching WHO health-emergencies programme that is currently underfunded.