

Predictive assessment of transmission conditions of cholera in the environment and human population using earth observations

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UK Met Office
OCHA
UNICEF

Goal of Research Project

We thematically envision “Cholera Ready Nations- focusing on Africa” where satellite based prediction (of risk of trigger and likelihood of transmission of cholera in the human population) will provide sustainable and resilient readiness to prevent outbreak of disease, saving human lives and improving quality of life.

Pathogen Module

Growth curves



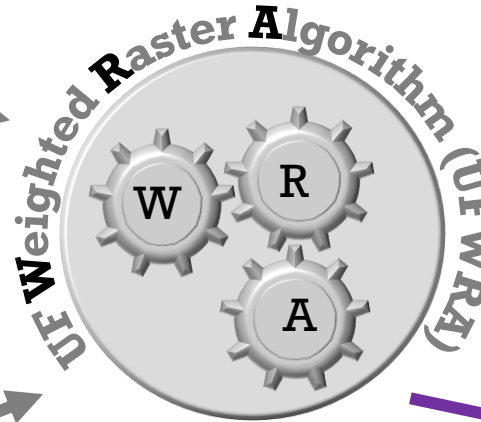
Population Module

Density
Displacement
Income*
Age*



Climate Module

Temperature
Precipitation



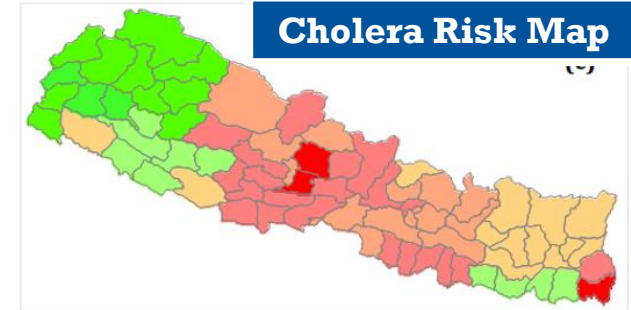
Interaction Module

Natural Disasters
Anthropogenic Disasters
Civil Status



WASH module

Drinking Water
Sanitation





Vibrio Prediction Hub

A decision-making initiative for protecting human health and enhancing the resilience of coastal communities under current and changing environments

GeoHealth & Hydrology Lab at the University of Florida

OUR PRIORITIES

Understand the Role of Humans in the Hydrological Cycle

We work hard to meet this goal by researching these key areas for a sustainable environment



DEPARTMENT

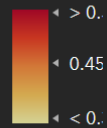
Last Updated at (M/D/YYYY)

Map Legend

Risk

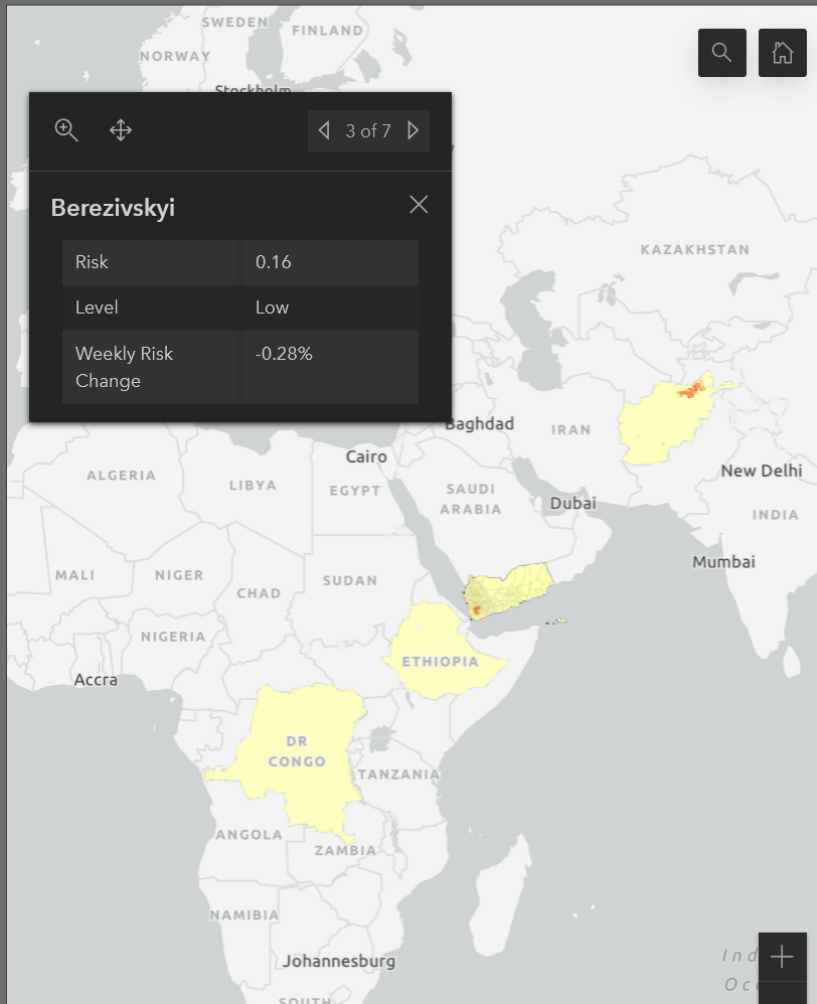


Risk



Disclaimer

The University of Florida does not make any warranties about the completeness, reliability, and accuracy of the information provided on this map. Any action you take upon the information relating to the



Ethiopia Weekly Risk Change

Dasenech (Kuraz): 41.58%

Gena Bosa: 31.12%

Hurumu: 25.27%

Lalo Kile: 24.54%

Hamer: 16.61%

Gumer: 16.33%

Loma Bosa: 15.84%

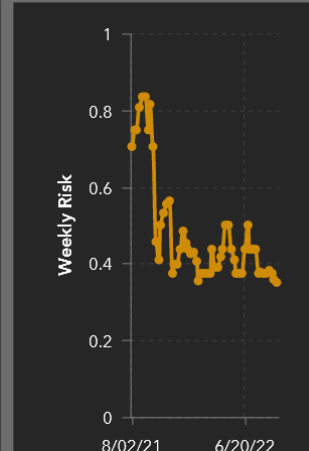
Doya Gena: 15.51%

Kamashi: 15.11%

Becho: 14.12%

D... 14.12%

Ethiopia



Key Features of the App



Ability to use precise location to filter data in the map



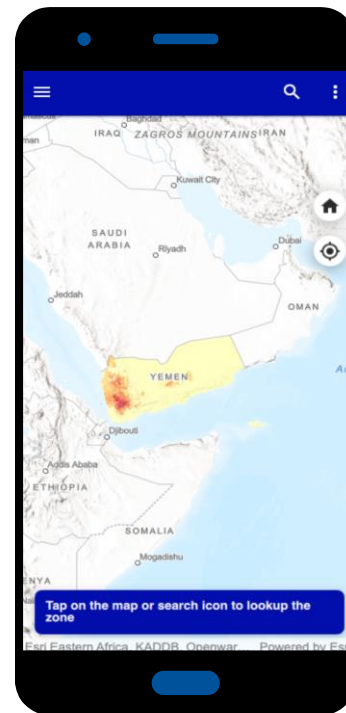
Provides local information on Cholera risk and nearby hospitals



Directions to nearest hospital when user clicks on features



Results-focused layout



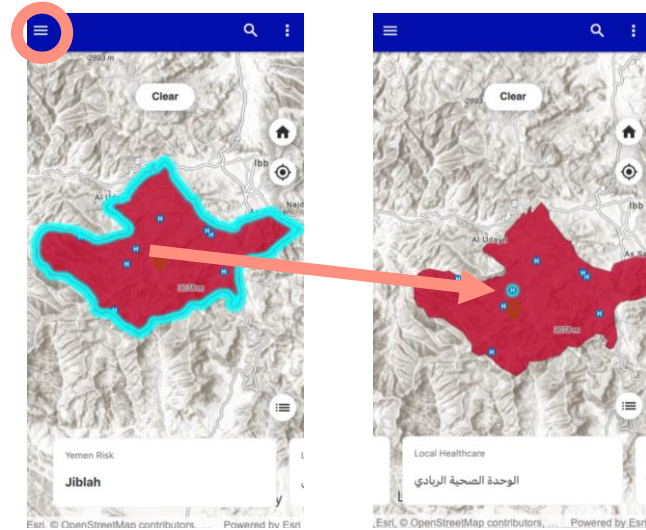
Disease Prevention Resources for Users

Local hospitals are shown when a user selects an area which can be clicked to show directions to the hospital



Detailed information regarding *Vibrio cholerae* strains along with prevention/control approaches will be included in the left panel popup

A pre-development idea is shown to the left



Achievements

- Cholera in Ukraine
- Cholera in Pakistan
- Cholera in Afghanistan XX



June 10, 2022 4:07 PM

UPDATE June 10, 2022
8:21 PM

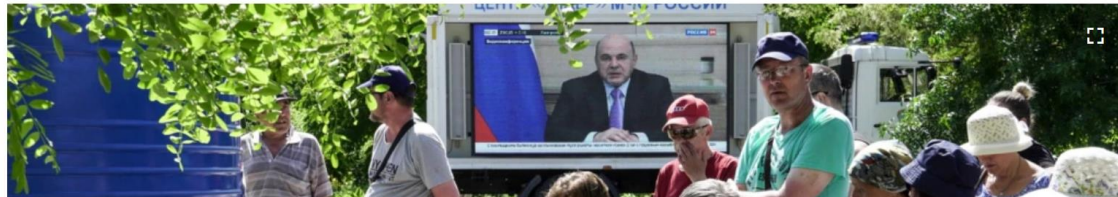
VOA News

Officials Warn of Cholera Outbreak in Mariupol

Share



 Print



Health officials warn of major outbreaks of disease after severe floods in Pakistan

Diarrhoea and malaria cases spread, with risk of dysentery and cholera, as millions of displaced people forced to drink flood water



YouTube Videos

Video narrative of CRM

What is CRM?

CRM stands for Cholera Risk Model.

It provides a cholera risk which is valid for four weeks from the day it has been computed.

Why was CRM developed?

Cholera remains one of the preventable diarrheal disease, but still impact young kids and elderly population.

However, we see repeated outbreaks of this disease in human population. There are several examples, such as Haiti in 2010, Zimbabwe in 2008 and more recently in Yemen in 2016.

Cholera is preventable in a sense that if provisions of safe water, sanitation and hygiene are ensured, the likelihood of a massive outbreak is unlikely.

Previous research has shown that *Vibrio cholerae*, a [bacteria](#) responsible for causing this disease has strong association with water ecology and climatic and environmental processes such as temperatures, precipitation, chlorophyll etc.

Regional Cholera Prediction System (RCPS)

How will this guide help me?

This guide shows you how to use and interpret cholera risk maps produced using Regional Cholera Prediction System (RCPS).

Introduction

1.1 Description

Regional Cholera Prediction System (RCPS) computes risk of cholera at pixel level (4km) resolution. Cholera risk map provides risk (high, medium, low) of cholera for next four weeks (i.e., from the date the first forecast is issued).

Note: Refer to section [2.1 Getting Started](#).

1.2 Scope

The following items shall be in scope for this release:

Cholera Risk Model (Trigger component): Outbreaks of cholera is limited to two components: the triggering and the transmission of the disease in a human. Consumption of water containing an infective dose of the cholera bacteria can trigger cholera outbreak in a population. However, growth of the pathogen is linked to climatic factors with strong seasonality that further affects the ecological niche of the vibrios. Therefore, following a

Regional Cholera Prediction System (RCPS)

IMPORTANT: The command line text *must be in the body of the message*, not the subject line. No other text can be in the body of the message besides the command line for it to work so please turn off any signature or inline images in your message to unsubscribe.

The listserv then sends a message requesting a reply to verify the subscription process. Simply click the link in the message to confirm your subscription. Then the listserv then sends a message stating you have been removed from the list.

Cholera Risk Model – Contact the University of Florida to obtain help, using any of the details shown below:

- By phone: 352-294-6898
- By email: choleraprediction_users@lists.ufl.edu

Please specify your issue, or in the case of Regional Cholera Prediction System|

Inaccuracies, specify which elements of the forecast that you believe to be inaccurate, in the email subject line

UF listserv will send you an email to confirm your email.

Sample email message

For security reasons, the CHOLERAPREDICTION_USERS list has been configured to request positive confirmation of messages posted to the list. You must now confirm that the enclosed message did originate from you. To do so, simply reply to the present message and type "OK" (without the quotes) in the text of your message, or click on the link below. If this does not work, or if the message did not originate from you, then contact the list owner for assistance.

Tasks completed- May 2023

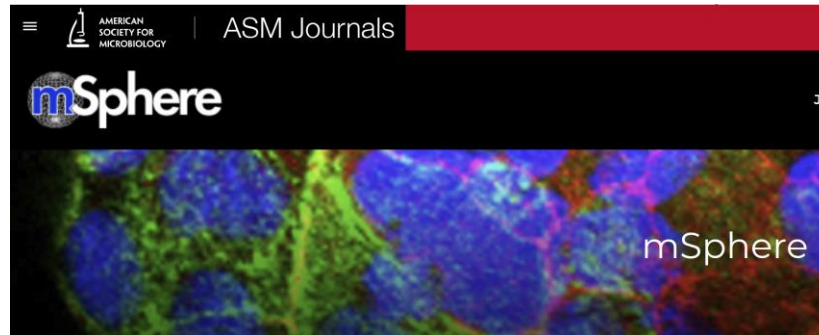
- App building and application
- Training and implementation manuals with workshops with research groups
- Anticipatory decision-making activities
 - UNOCHA based activities in Africa.

Onehealth, climate and Microbes: A special collection on how changing climate impact microbes or vice versa, new technologies highlighting earth observations, metagenomics for understanding human well-being, equity and justice.

[JOURNALS](#) ▾[TOPICS](#) ▾[BOOKS](#)[OTHER PUBLICATIONS](#) ▾

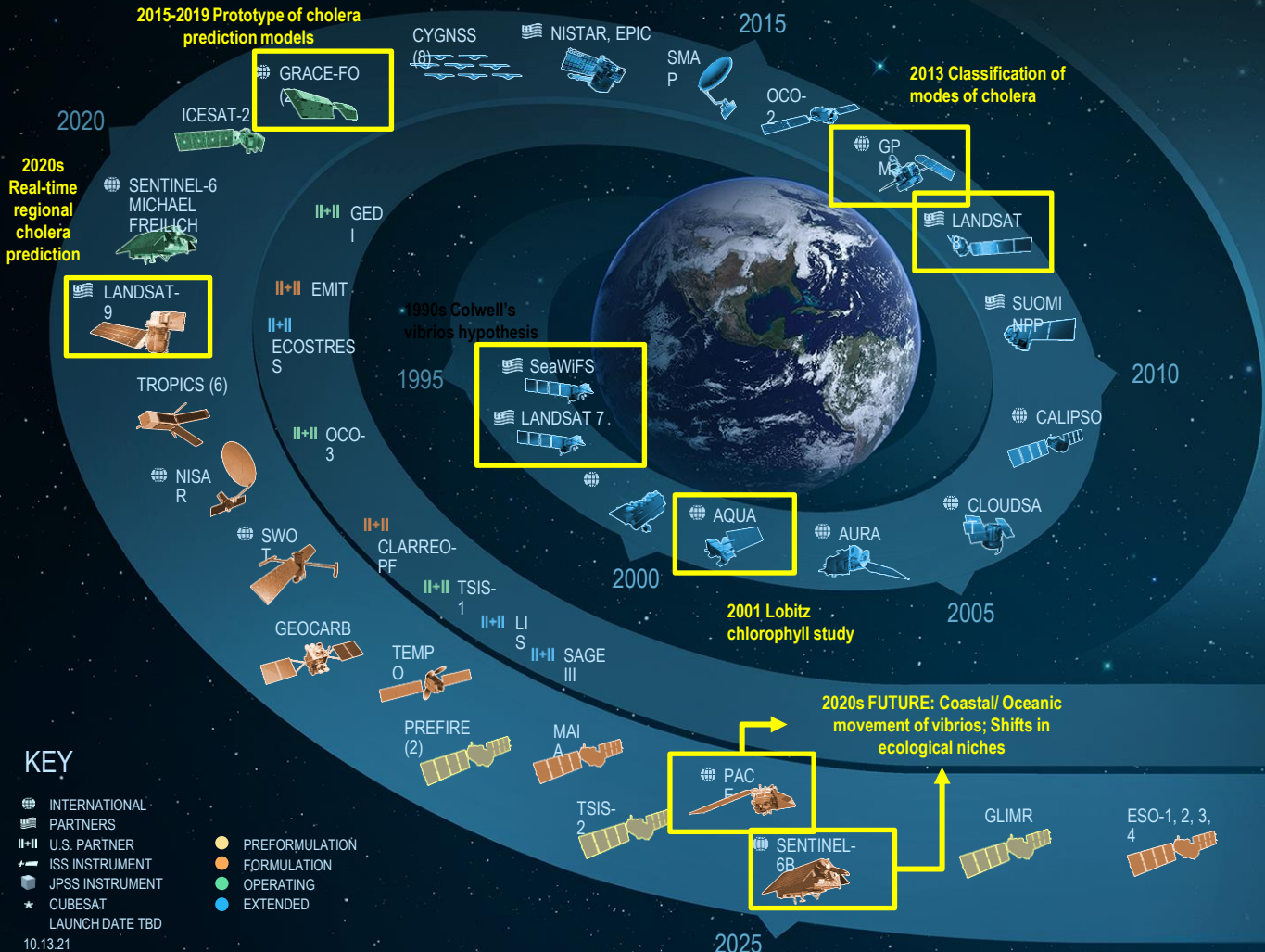
GeoHealth

GeoHealth is a transdisciplinary, Gold Open Access journal publishing high-quality original research articles and commentaries across the intersections of the Earth and environmental sciences.





EARTH FLEET



INVEST/CUBESATS

- CSIM-FD 2023
- HARP 2022
- CIRIS 2023
- CTIM* 2022
- HYTI* 2022
- SNOOPI* 2022
- NACHOS* 2022
- NACHOS2* 2022

JPSO INSTRUMENTS

- OMPS-LIMB 2022
- LIBERA 2027

ISS INSTRUMENTS

MISSIONS

- KEY**
- INTERNATIONAL PARTNERS
 - U.S. PARTNER
 - ISS INSTRUMENT
 - JPSO INSTRUMENT
 - CUBESAT LAUNCH DATE TBD

- PREFORMULATION
- FORMULATION
- OPERATING
- EXTENDED

ARL information

Starting ARL: 3

Current ARL: 9

Target ARL: 9

Thank you