



WORLD  
METEOROLOGICAL  
ORGANIZATION



**USAID**  
FROM THE AMERICAN PEOPLE



## Data Status and Requirements

Initial planning meeting, Nay Pyi Taw, Myanmar  
26-28 February, 2018



Eylon Shamir, Ph.D,  
[EShamir@hrcwater.org](mailto:EShamir@hrcwater.org)

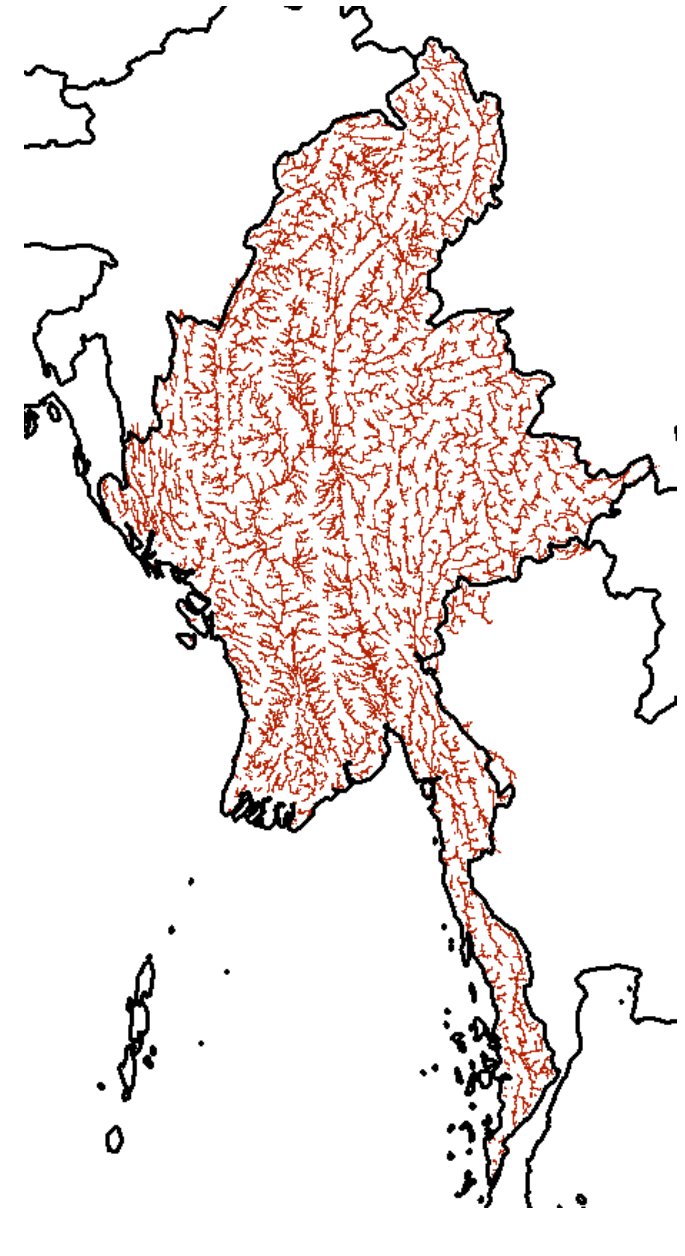
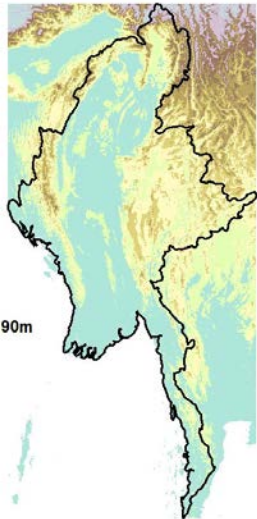
Hydrologic Research Center  
San Diego, California



# Basins Delineation

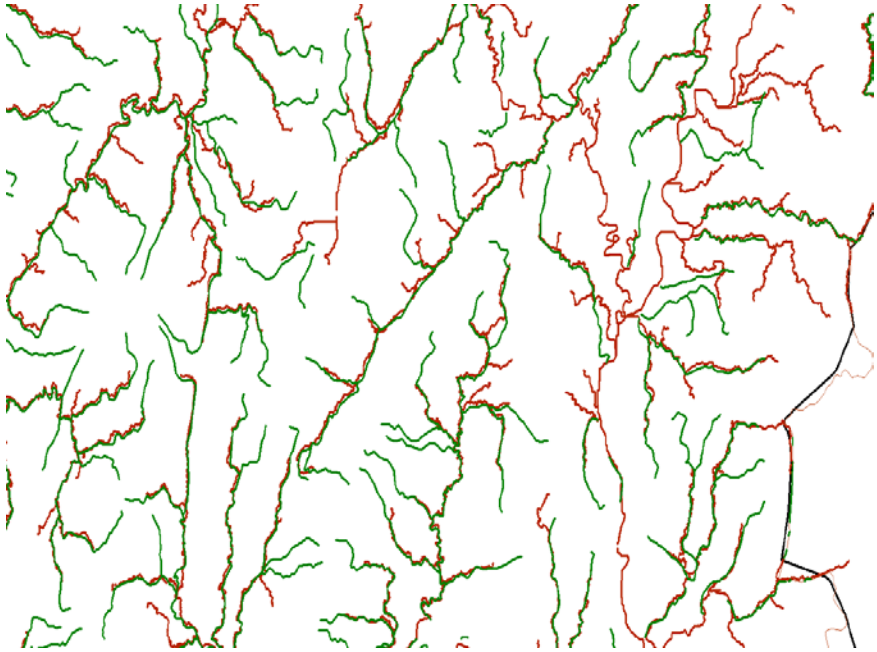
A total of 6226 basins were delineated with average basin size  $\sim 100 \text{ km}^2$

- DEM SRTM data (NASA's Shuttle Radar Topographic Mission) at 1 arc-second,  $\sim 30\text{m}$
- GRASS (Geographic Resources Analysis Support System, (<http://grass.osgeo.org/>),

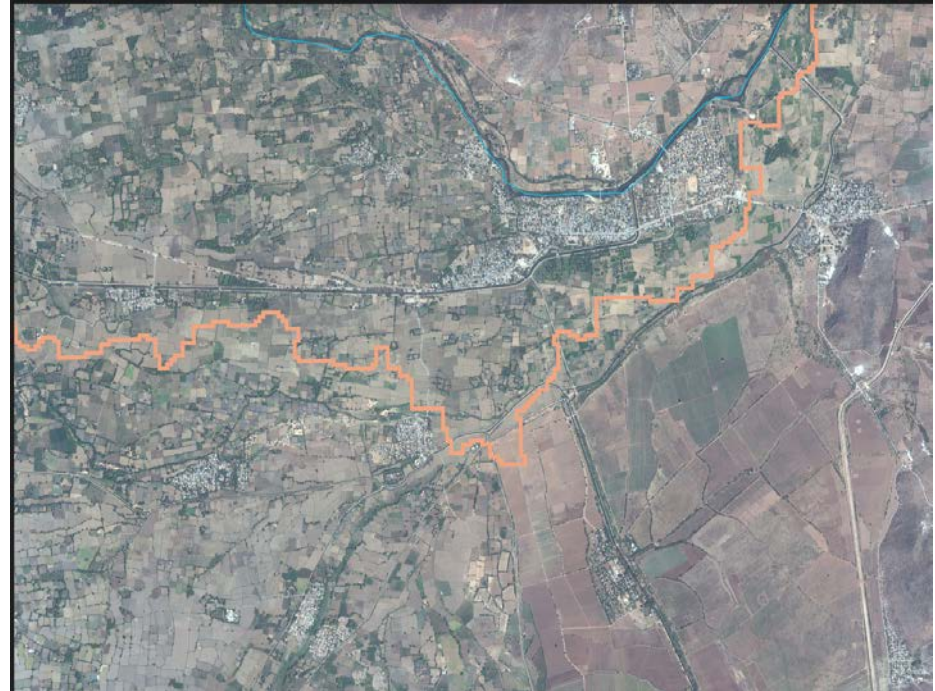


# Delineation Quality Control

## Step - I



## Step - II



## Step – III

- The delineation files and a report were delivered 7 February, 2018
- Comments are expected by 2 March, 2018.
- In case we receive comments we will revise and **finalize** the delineation

# Data Request

- A data request document was sent in August 2017.
- We received data

Historical records of:

- Daily precipitation from 30 (DMH stations) + 6 (AG stations) for 2012-2016
  - many of those stations have also daily wind speed and direction and RH.
- ~17 hydrometric stations with level and discharge three reports per day – likely large rivers

## **GIS Layers:**

- Stream network (we used this layer for the QC of the basins delineation)
- Political borders
- Coastline
- Large river basins

# Additional Datasets that are needed

- **Spatial GIS Data**

- Soils data to include soil texture or soil properties data, and depth of upper soil and sub-soil
- Monthly climatological ET maps / monthly average surface temperature maps

- **Stream Survey Data**

- Local stream cross-sectional survey data for natural streams draining 10-2000km<sup>2</sup>
- Reports of regional relationships between channel cross-sectional characteristics and catchment characteristic

- **Real Time Data**

- Surface precipitation and weather data (hourly or 6-hourly)

# Future real-time data available from DMH

## AWS:

- 51 WMO –GTS 3-hour
  - Eventually there will be 140 stations available
    - 30 Jica
    - 90 IRM World Bank
    - 20 ASOS KMI
- 17 Agromet 1-hour
- 8 Aviation METAR stations 6-hour



# Myanmar Agricultural Atlas

THE UNION OF MYANMAR  
MINISTRY OF AGRICULTURE AND IRRIGATION



## Agriculture Sector Review Project

### Agricultural Water Resources Study in Myanmar

(Water Scarcity Variations in Myanmar)

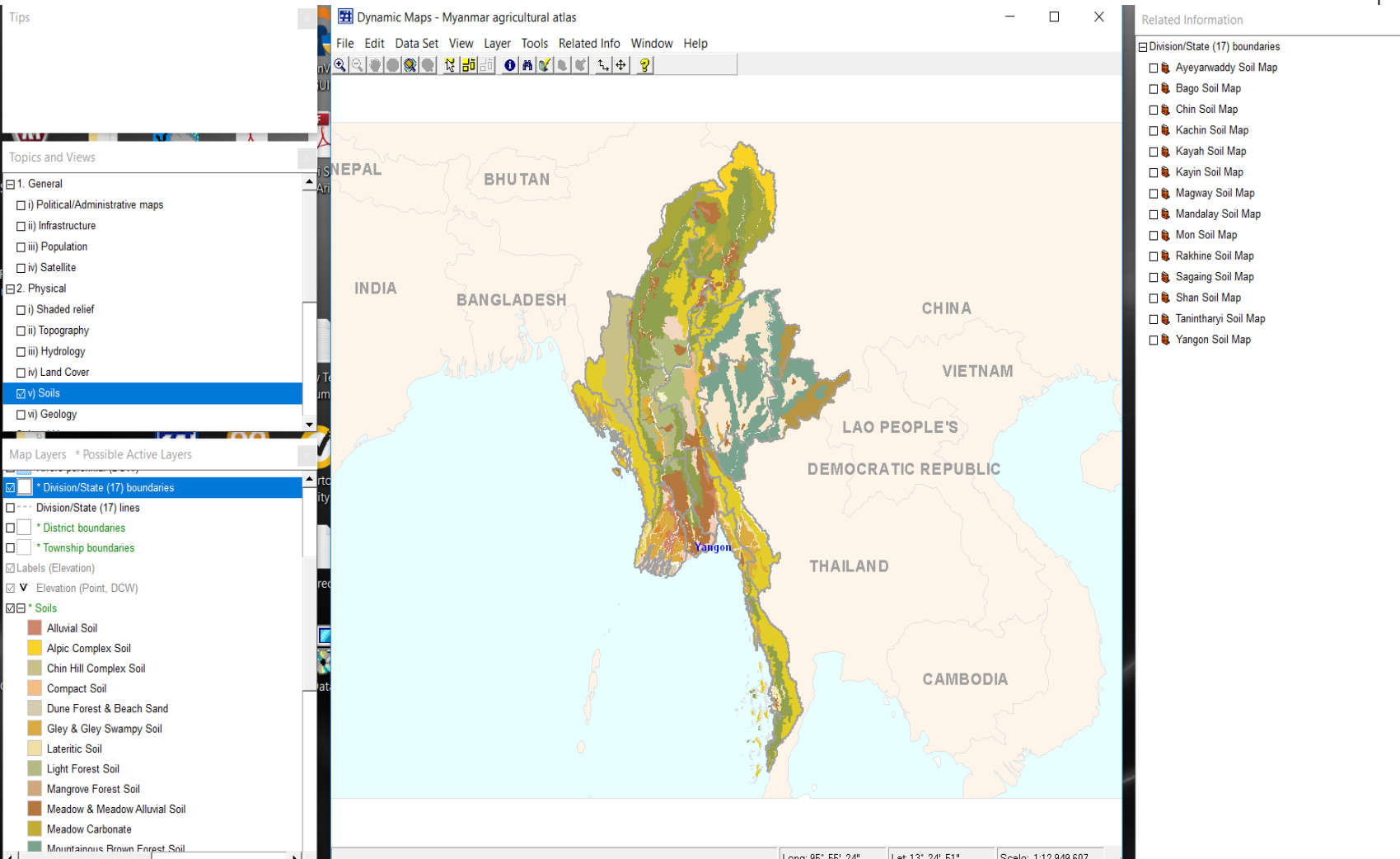
By

Myanmar Academy of Agriculture, Forestry  
and Livestock and Fisheries

Irrigation Department  
and  
Water Resources Utilization Department

Yangon, Myanmar

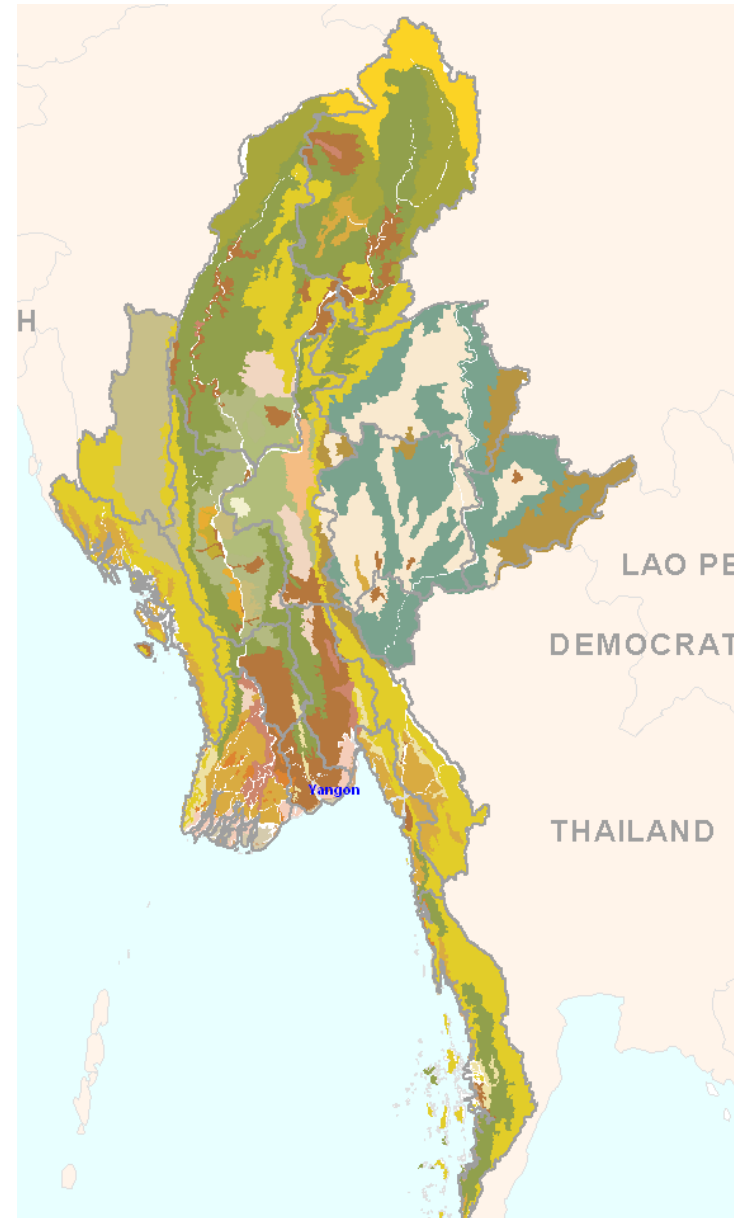
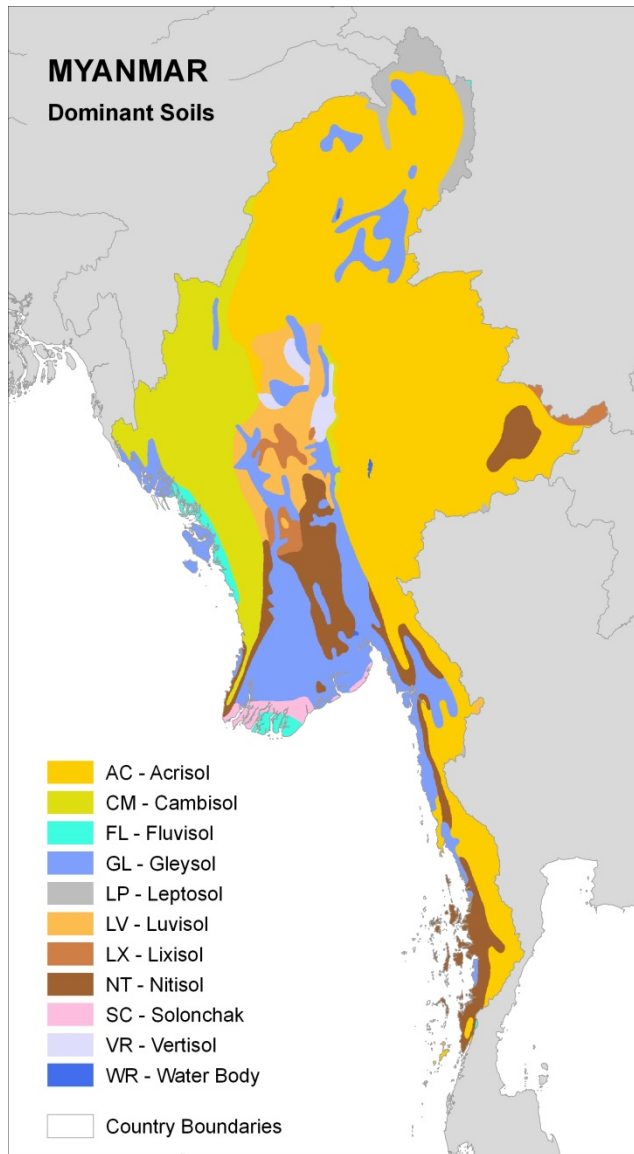
December, 2003



FAO

Myanmar Agricultural Atlas

\* Soils



- Alluvial Soil
- Alpic Complex Soil
- Chin Hill Complex Soil
- Compact Soil
- Dune Forest & Beach Sand
- Gley & Gley Swampy Soil
- Lateritic Soil
- Light Forest Soil
- Mangrove Forest Soil
- Meadow & Meadow Alluvial Soil
- Meadow Carbonate
- Mountainous Brown Forest Soil
- Mountainous Red Forest Soil
- Northern Hill Complex Soil
- Popa Complex Soil
- Primitive Crushed Stone Soil
- Red Brown Forest Soil
- Red Earth & Yellow Earth
- Saline Swampy & Meadow Gley Soil
- Savana Soil on Slopes & Compact Soil in Depression
- Swampy Soil
- Turfy Primitive Soil
- Yellow Brown Dry & Indaing Soil
- Yellow Brown Forest Soil



# Myanmar WRF

Two configurations of WRF-ARW are currently being tested at HRC.  
(This cover approx. the same region as shown).

Initial and boundary conditions from Global Forecast System (GFS) with 0.5° resolution

Run 2x Daily for 00 UTC and 12 UTC (GFS Runs are completed in ~4 hours)

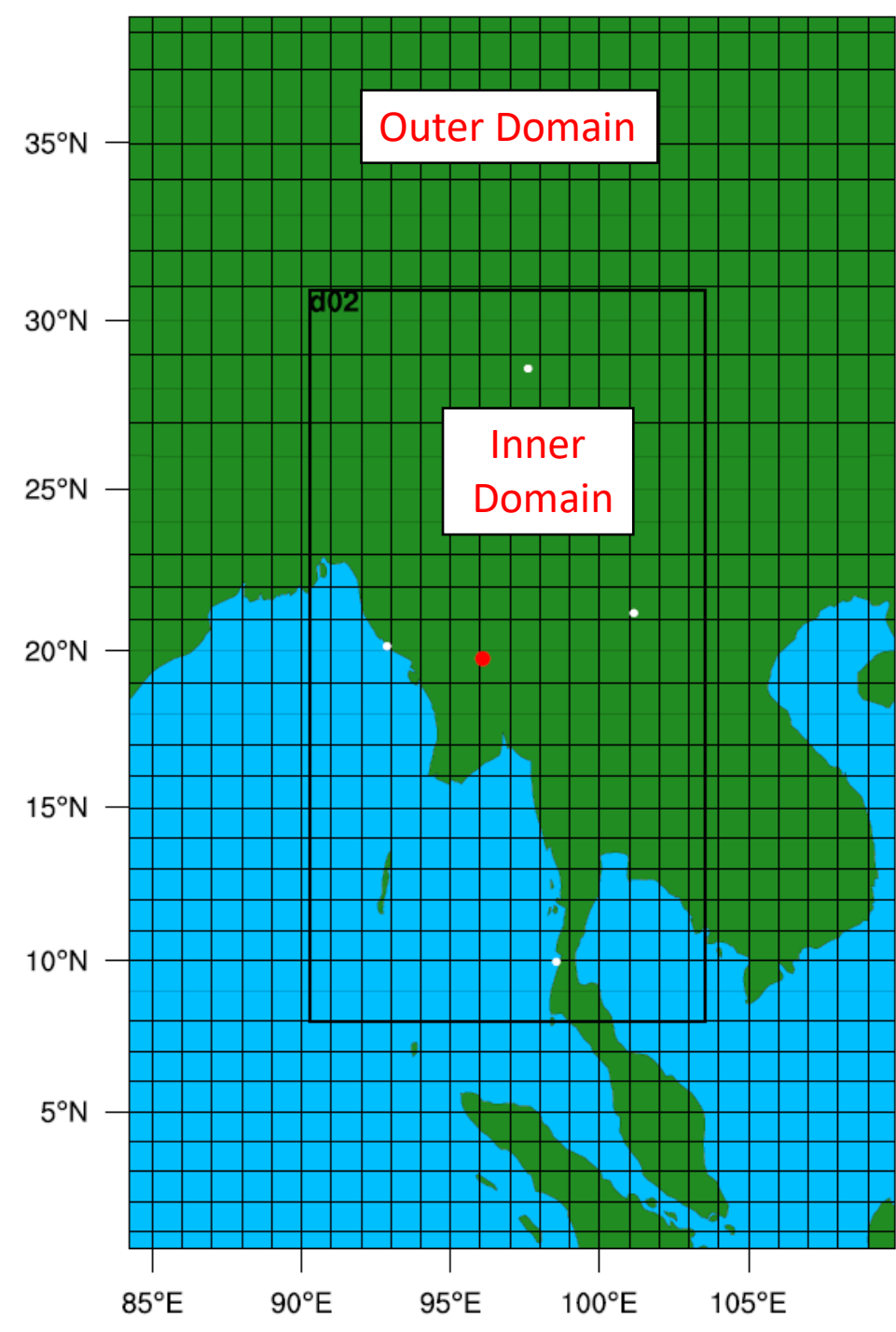
## Configuration 1:

outer domain: resolution=18km; grid size=150 x 240  
inner domain: resolution= 6km; grid size=232 x 427  
Approx. time for completion: 3 hours

## Configuration 2:

outer domain: resolution=12km; grid size=220x350  
inner domain: resolution= 4km; grid size=331x616  
Approx. time for completion: 6 hours

\*Currently Running on 14 cores



# Flash Flood Risk Assessment

Entire Haiti (Average Basin Area: 72 km<sup>2</sup>)

