

# WET AND DRY SPELLS

Rainfall over Madagascar regions

Tsinampoizina Marie Sophie Randriamahefasona

06 July 2020

# Definition of dry spells

- . A **dry spell** is a period in which every pentad (5 days period) receives a precipitation amount less than 5mm
- . A dry spell could be either a dry pentad or a consecutive combined dry pentads
- . Example

If we have the following 10 days rainfall pattern

Day	1	2	3	4	5	6	7	8	9	10
(mm)	0	0	0	2	2	0	2	0	4	0

then from Day1 to Day5 is a dry pentad as well as from Day2 to Day6, both total precipitation amount are less than 5mm.

But, from Day3 to Day7 is not a dry pentad as the total precipitation amount is more than 5mm.

Conclusion, in this example, we have a dry spell from Day 1 to Day 6

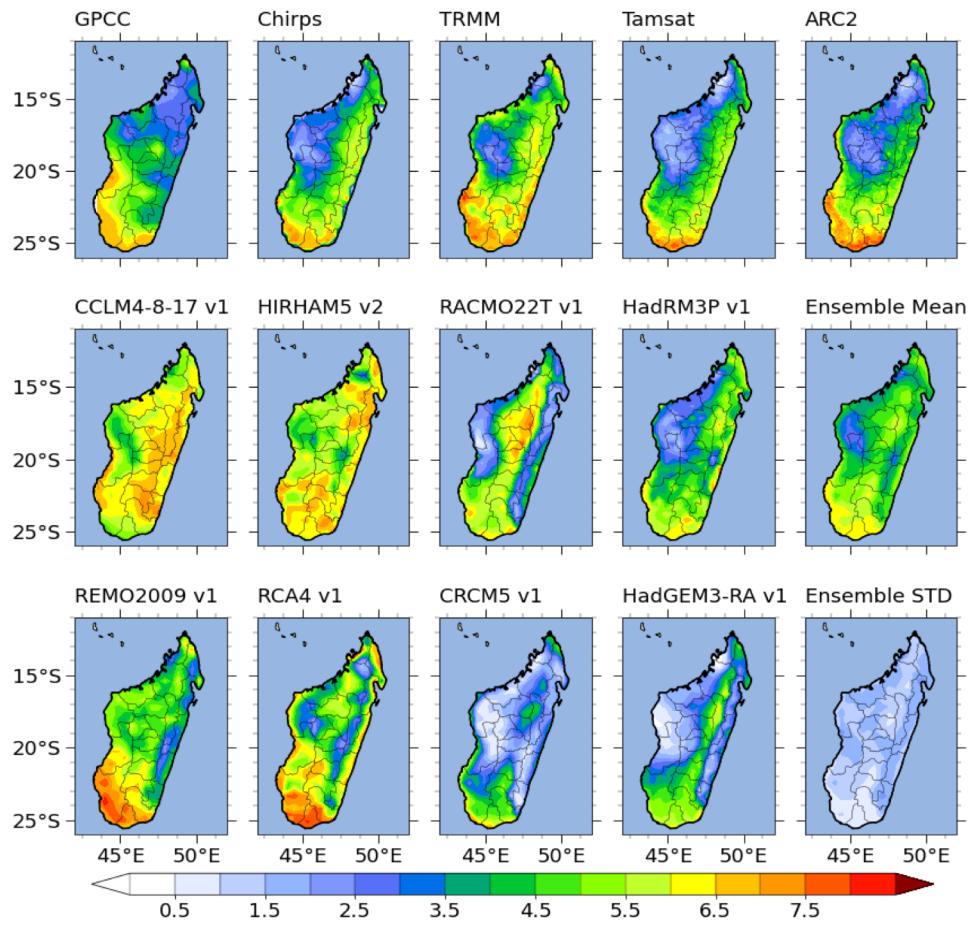
# Dry Spells

A dry spell is not only a dry pentad, it could be a 6-days of dry spell, or a 7-days of dry spell, or a n-days of dry spell for n more than or equal to 5.

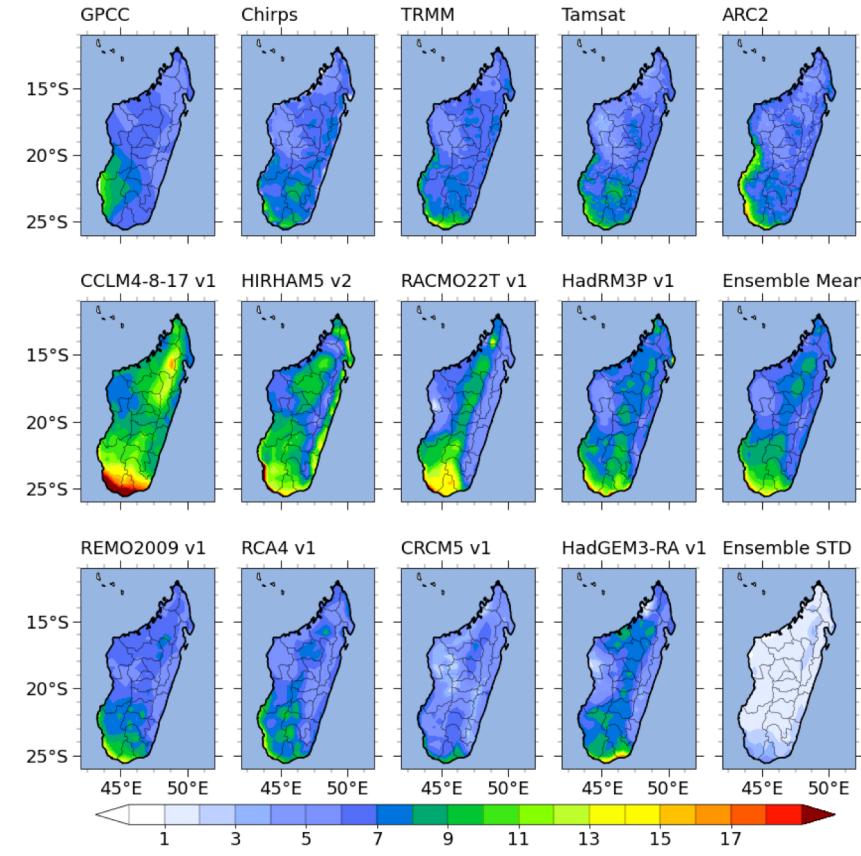
The length of dry spells is important for assessing agricultural impact. Some studies use maximum length of dry spell.  
[Reference to be checked]

Here, we use the average length of dry spells in reference to the number of days instead of the number of pentads in [Hachigonta&Chris].

Frequency of dry spells DJFM 1999-2008

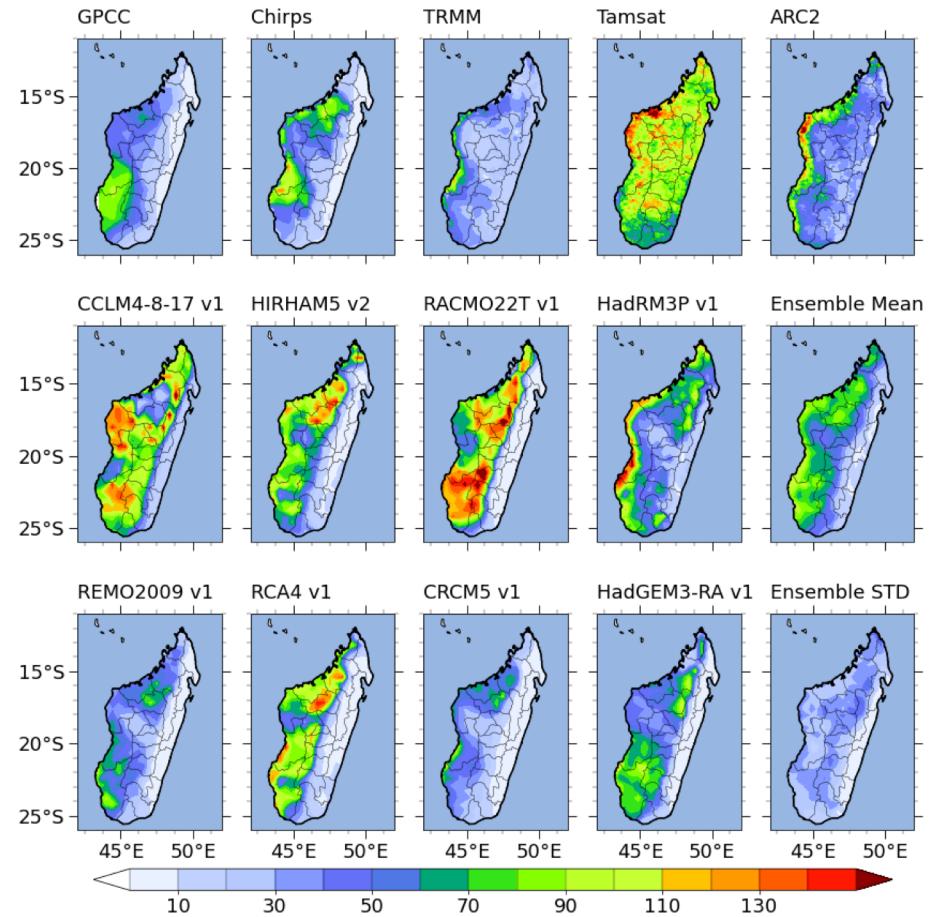
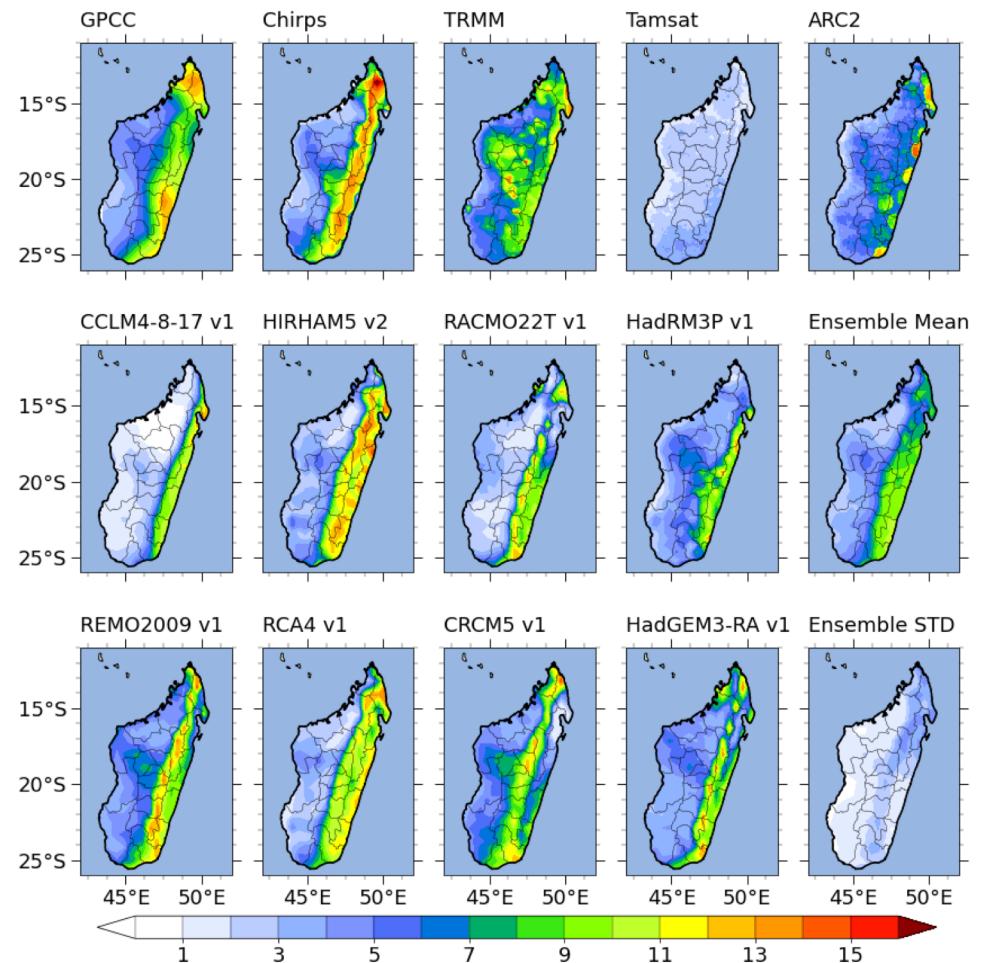


Average length of a dry spell DJFM 1999-2008



Frequency of dry spells Apr-Oct 1999-2008

DRY-SPELL-LENGTH Apr-Oct 1999-2008



## Important notes

### **Gridded Data:**

Dry spells are longer and more frequent in the south.

They are particularly longer in the western and southwestern Madagascar (Atsimo Andrefana region), where the average dry spell length varies between 8 and 10 days.

The southern Madagascar shows in average 7 dry spells in DJFM.

The rest of the island shows in average less than 4 dry spells.

Overall, the plot exhibits the same dry spell pattern as in [Usman&Reason].

### **Cordex Evaluation:**

**The Ensemble Mean exhibits overestimate of dry spells frequency in the centre of the island.**

CCLM, RACMO overestimate the length of dry spells in the south.

The plots of dry spells are interesting for each season separately, but not for the whole year.

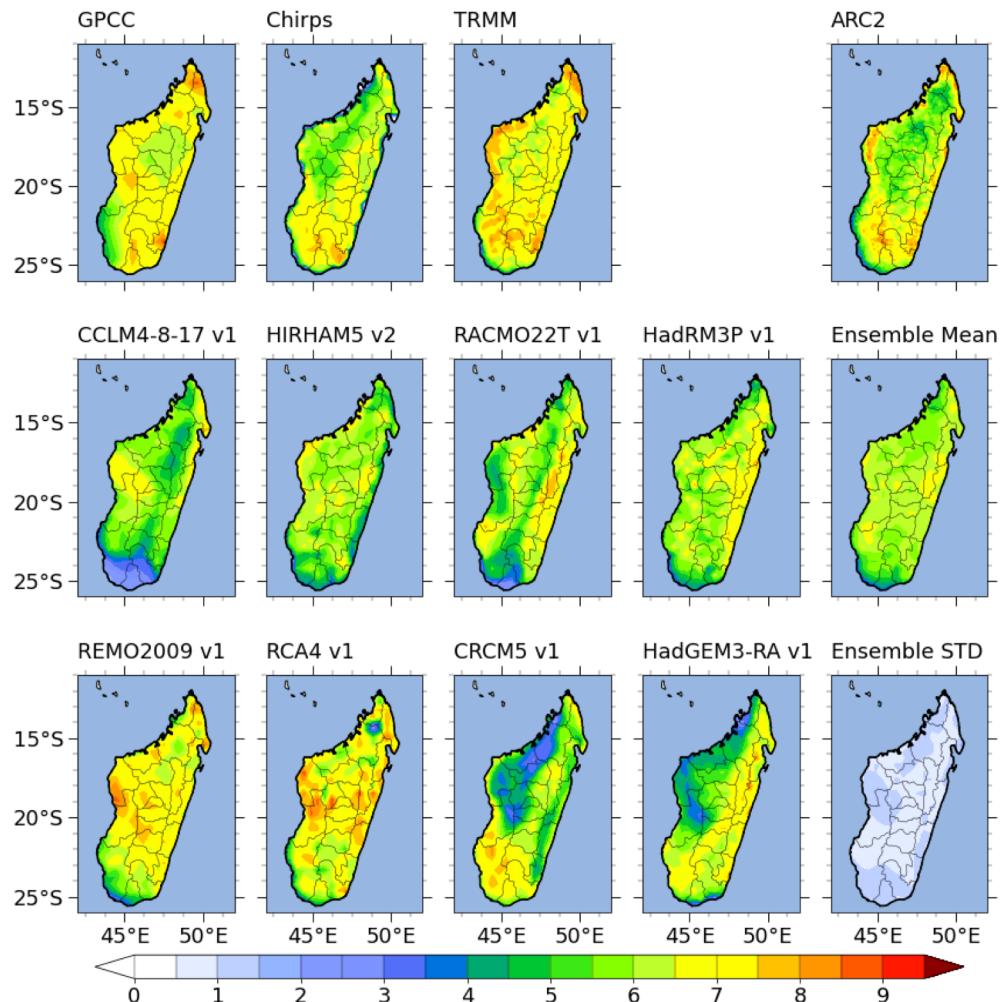
The length of dry spells during the dry season is longer but their numbers are fewer.

# Definition of wet spells

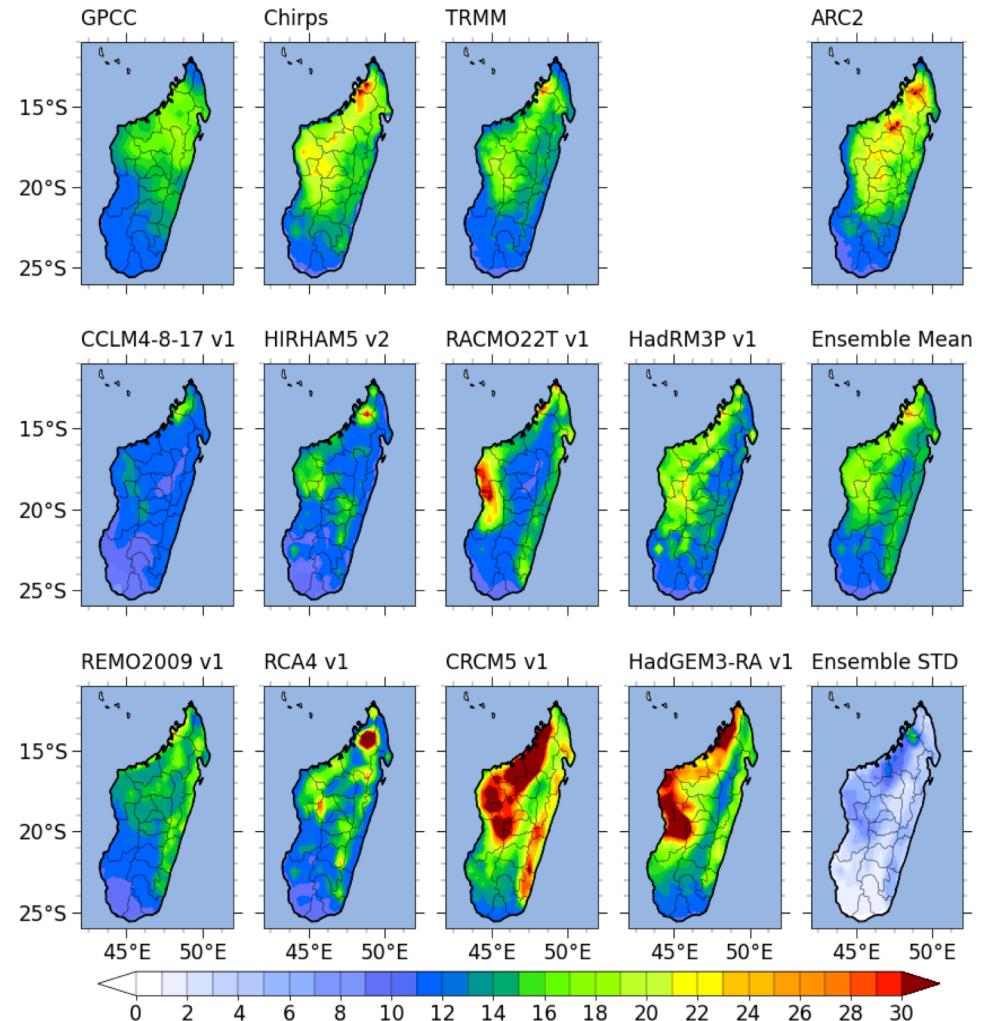
- . A wet **spell** is a period in which every pentad (5 days period) receives a precipitation amount more than 20mm.
- . A wet spell could be either a wet pentad or a consecutive combined wet pentads.

The method we combined consecutive wet spells is the same as with dry spells.

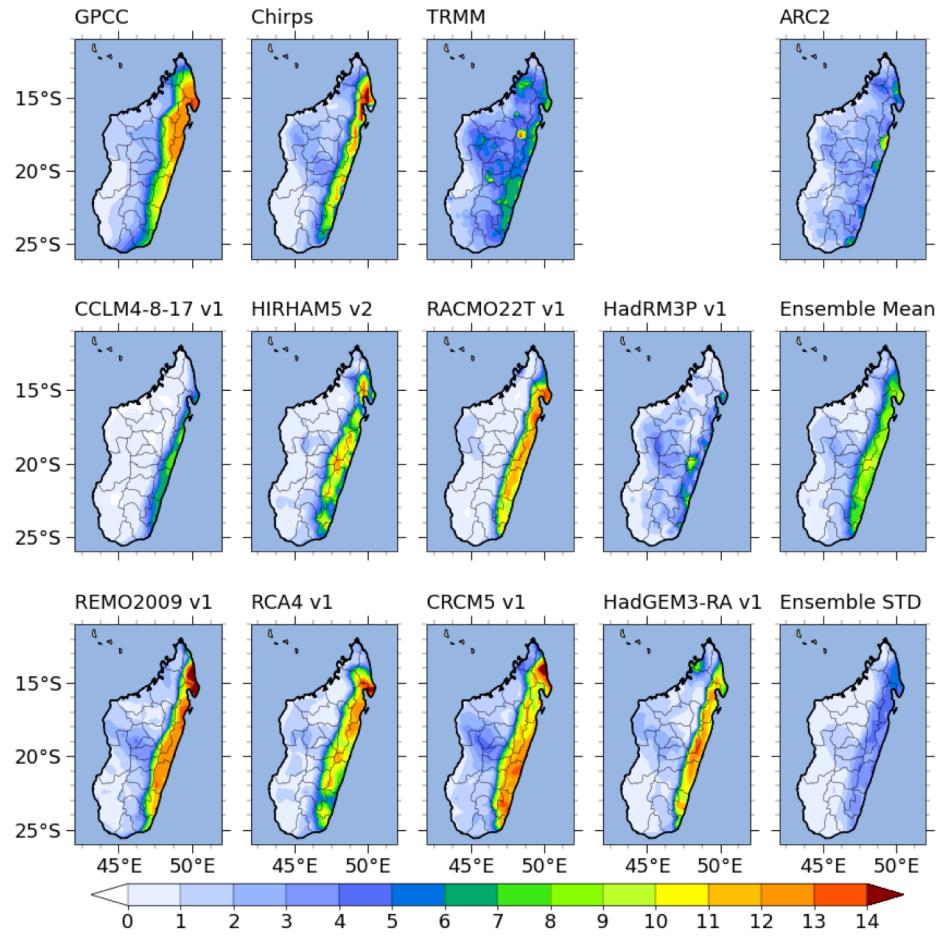
Frequency of wet spells DJFM 1999-2008



Average length of a wet spell DJFM 1999-2008



Frequency of wet spells Apr-Oct 1999-2008



Average length of a wet spell Apr-Oct 1999-2008

