COENOS

COMISIÓN TÉCNICA CONSULTIVA NACIONAL DEL FENÓMENO ENOS

imn

Instituto Meteorológico Nacional
Fundado en 1888

# Presentación COENOS: abril 2022

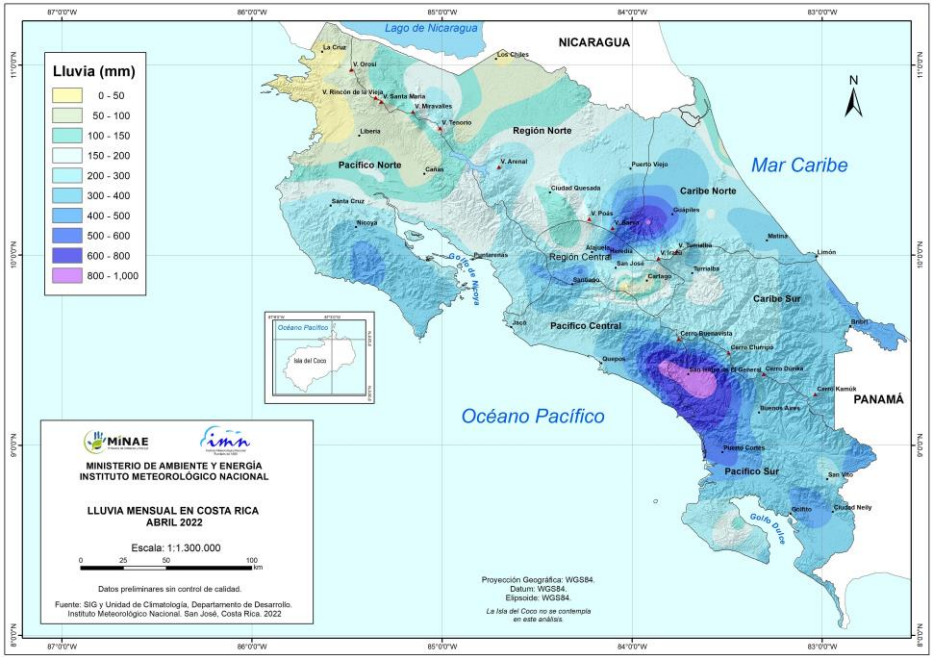
Por: Comité Técnico IMN-ENOS y

M.Sc. Karina Hernández

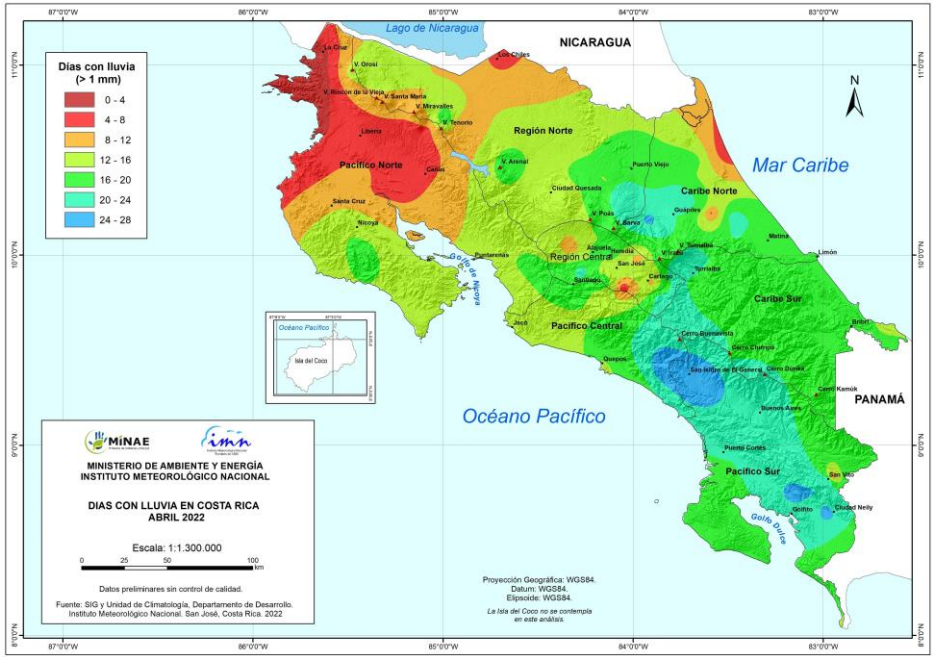
- Lluvia del mes previo
- Monitoreo de sequía
- Monitoreo de la temperatura superficial del Océano Atlántico
- Monitoreo del ENOS
- Análisis de modelos numéricos globales y locales
- Temporada de Ciclones Tropicales de la cuenca del Atlántico Norte
- Pronóstico del trimestre
- Época lluviosa

# Lluvia del mes previo

# Lluvias abril 2022

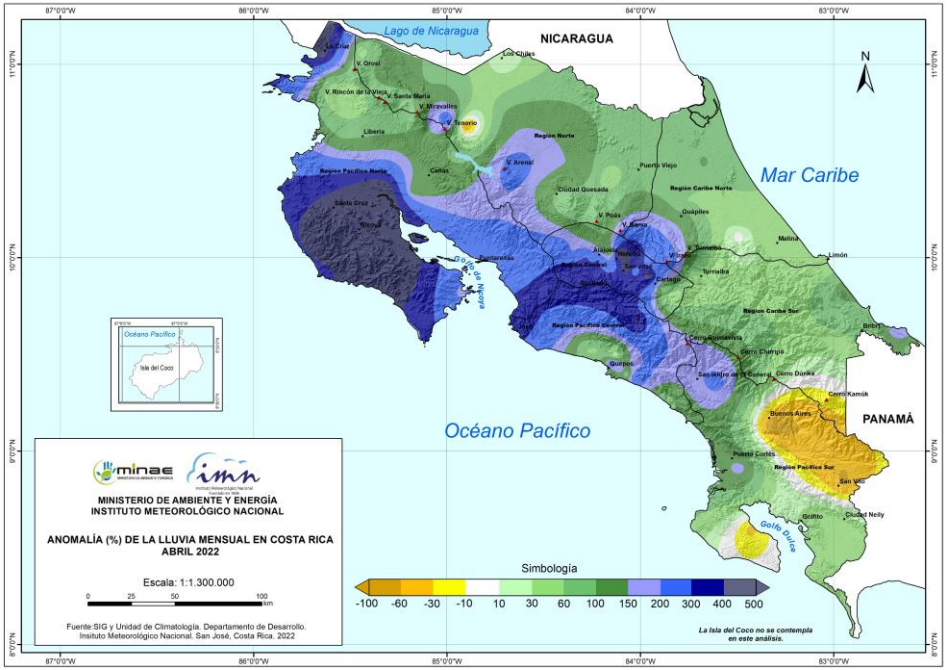



Lluvia acumulada (mm)

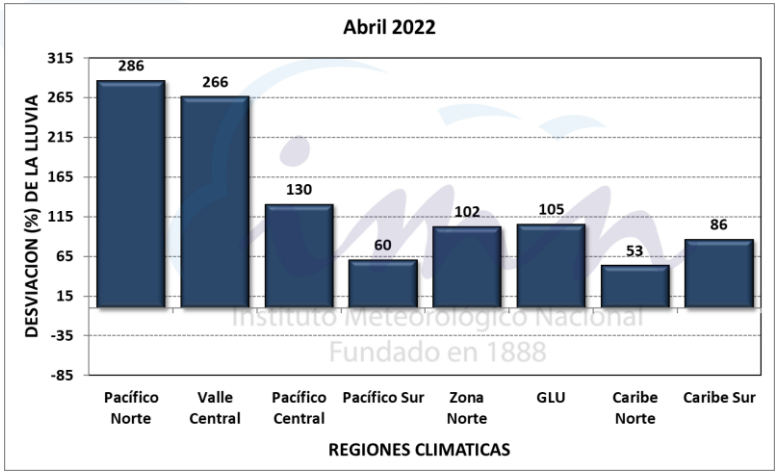



Número de días con lluvia

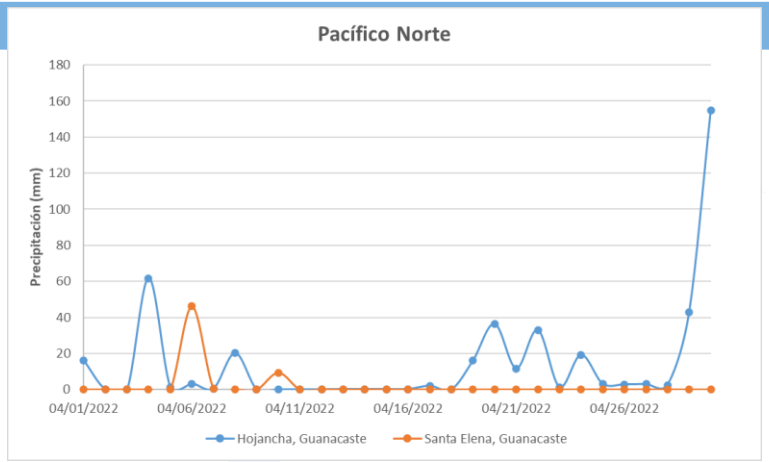
# Desviación porcentual de lluvia en abril 2022

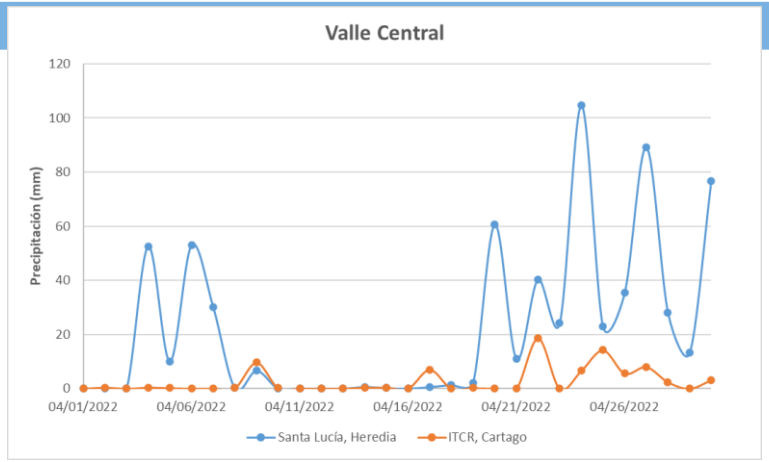


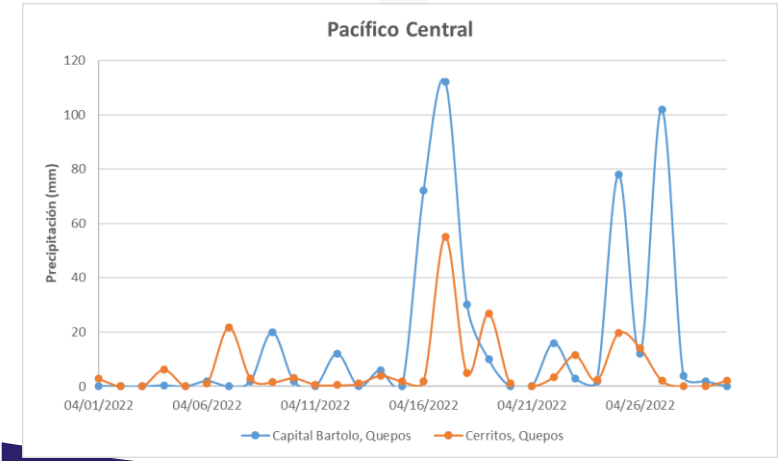

Espacialmente

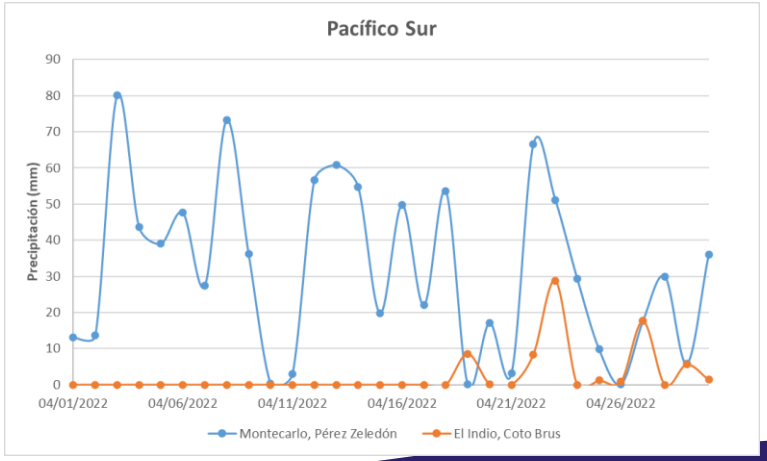



Región climática



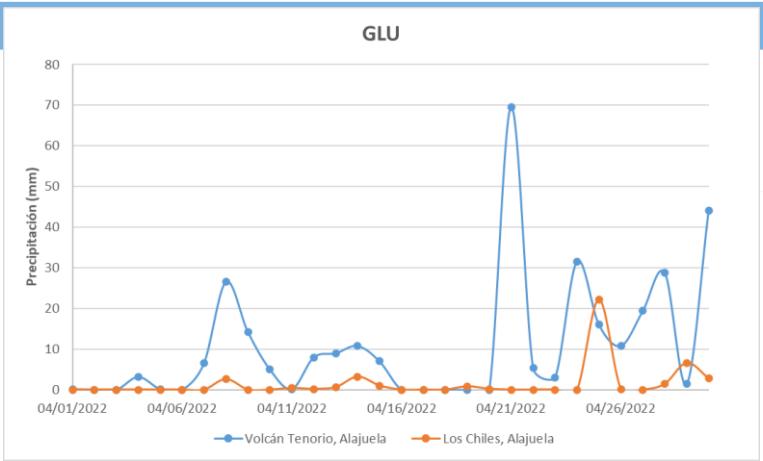



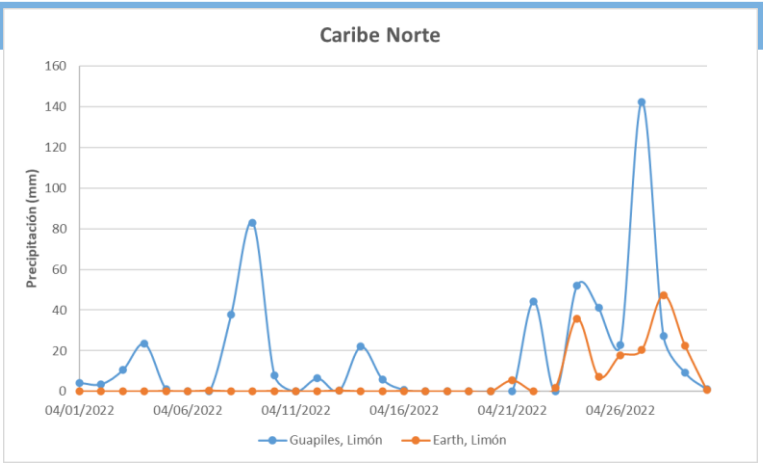



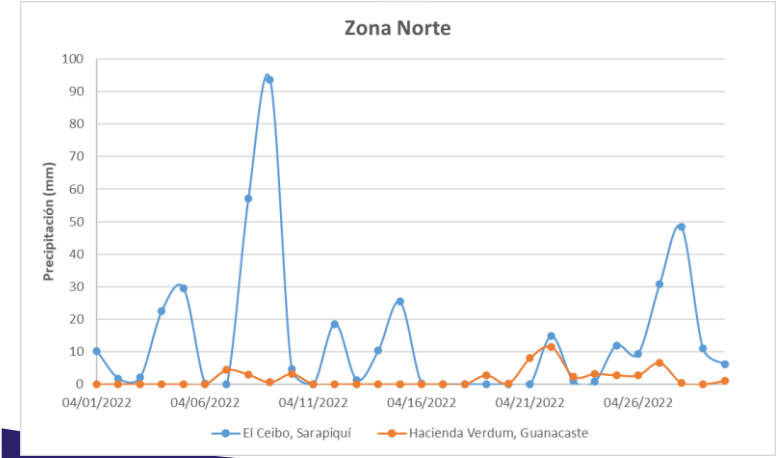

# Distribución temporal de lluvia en abril 2022

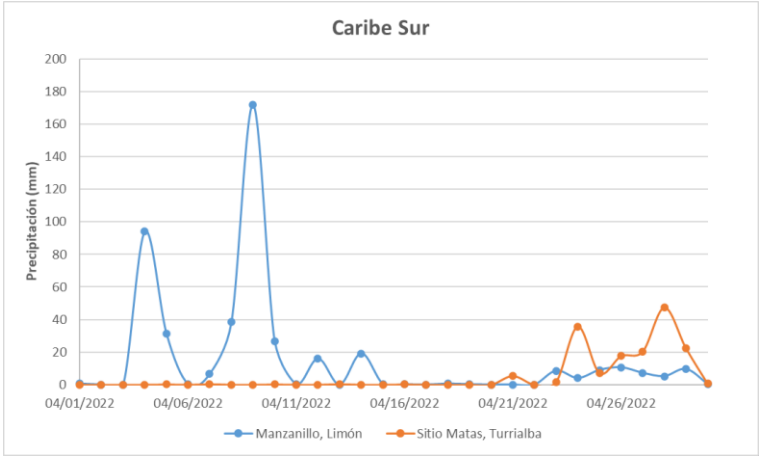
Instituto Meteorológico Nacional
Fundado en 1888

COSTA RICA




# Distribución temporal de lluvia en abril 2022

Instituto Meteorológico Nacional
Fundado en 1888

COSTA RICA

| Estación | Ubiación | Periodo | Lluvia abril 2022 (mm) | Máximo anterior |
|---|---|---|---|---|
| Santa Lucía | Heredia (VC) | 2011-2022 | 664 | 364 (2021) |
| Pilangosta, Hojancha | Guanacaste (PN) | 2017-2022 | 432,8 | 348 (2021) |
| Capital Bartolo | Quepos (PC) | 1945-2022 | 488 | 615 (1995) |
| Montecarlo | Pérez Zeledón (PS) | 2008-2022 | 962 | 658 (2018) |
| Volcán Tenorio | Alajuela (GLU) | 2017-2022 | 321 | 388 (2021) |
| El Ceibo | Sarapiquí (ZN) | 2015-2022 | 413 | 241 (2020) |
| Guapiles | Limón (CN) | 2011-2022 | 547 | 589 (2021) |
| Manzanillo | Limón (CS) | 2005-2022 | 461 | 477 (2021) |

| Estación Mecánica | Periodo | Lluvia abril (mm) |
|---|---|---|
| Santa Lucía | 1982-2022 | 360 (2021) |
| Belén, Nicoya | 1976-1991 | 218 (1979) |
| | | |
| Cedral | 1964-1993 | 620 (1979) |
| Río Achiote | 1989-2013 | 194 (1995) |
| San Miguel | 1960-2011 | 508 (1970) |
| Los Diamantes | 2004-2022 | 702 (1970) |
| Puerto Vargas | 1977-2016 | 481 (1987) |

| Estación | Ubicación | Lluvia (mm) abril 2022 | Máximo de lluvia (mm) antecedente en abril | Máximo de lluvia (mm) abril estación mecánica |
|---|---|---|---|---|
| **Santa Lucía** | Barva | 664 | 364 (2021) | 360 (2021) |
| **Santa Bárbara** | Santa Bárbara | 507 | 464 (2021) | 273 (1997) |
| **La Rebusca** | Sarapiquí | 275 | 264 (2008) | 372 (1999) |
| **Reserva El Ceibo** | Sarapiquí | 413 | 241 (2020) | 515 (1979) |
| **Planta Hidroeléctrica Río General** | Sarapiquí | 697 | 512 (2021) | 199 (1998) |

# Distribución temporal de lluvia en abril 2022

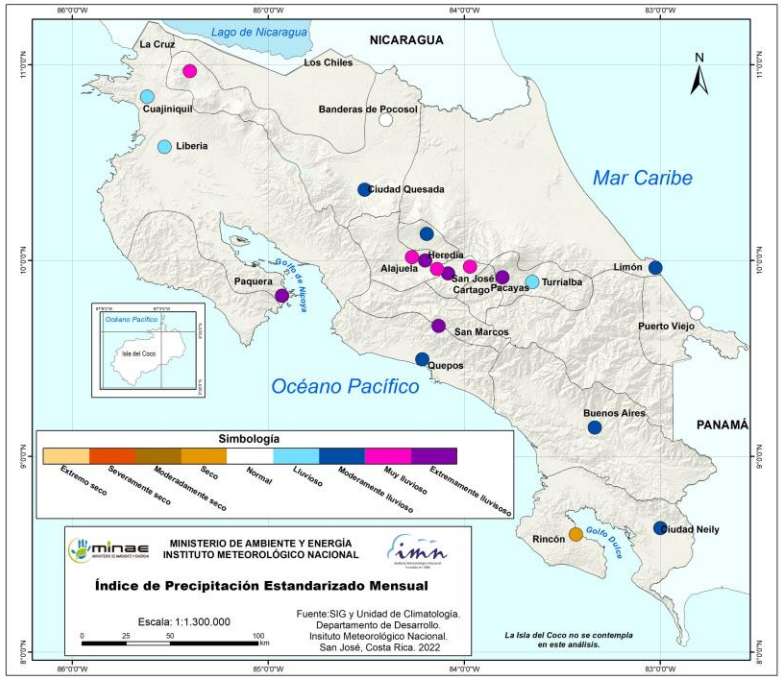
Instituto Meteorológico Nacional
Fundado en 1888

COSTA RICA

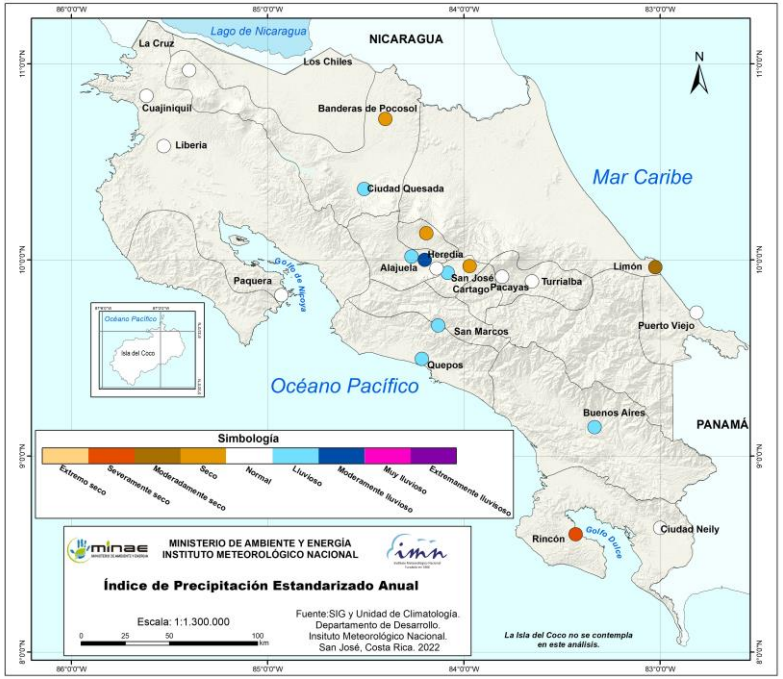
# Monitoreo de sequía

# Índice de precipitación estandarizado (SPI)

## Periodo base CLINO



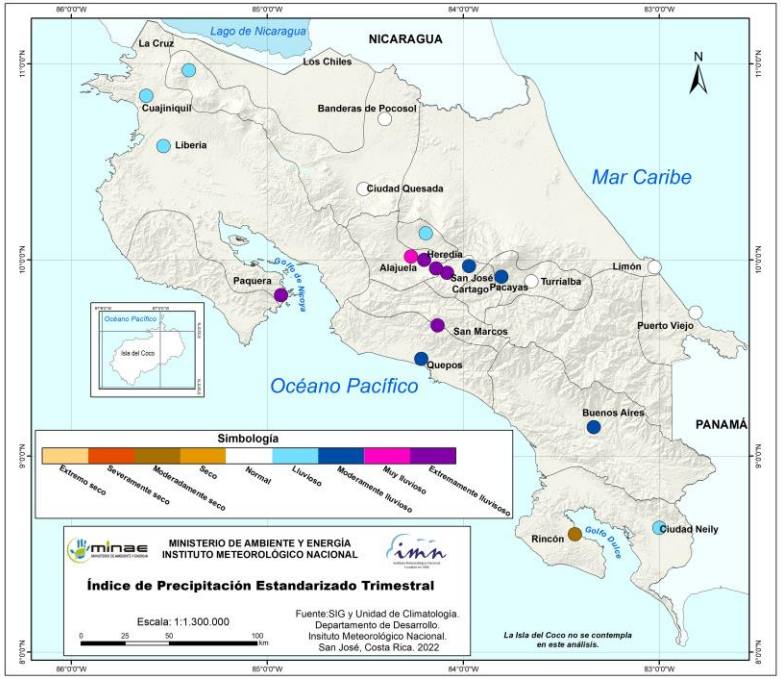

Mensual (abril)



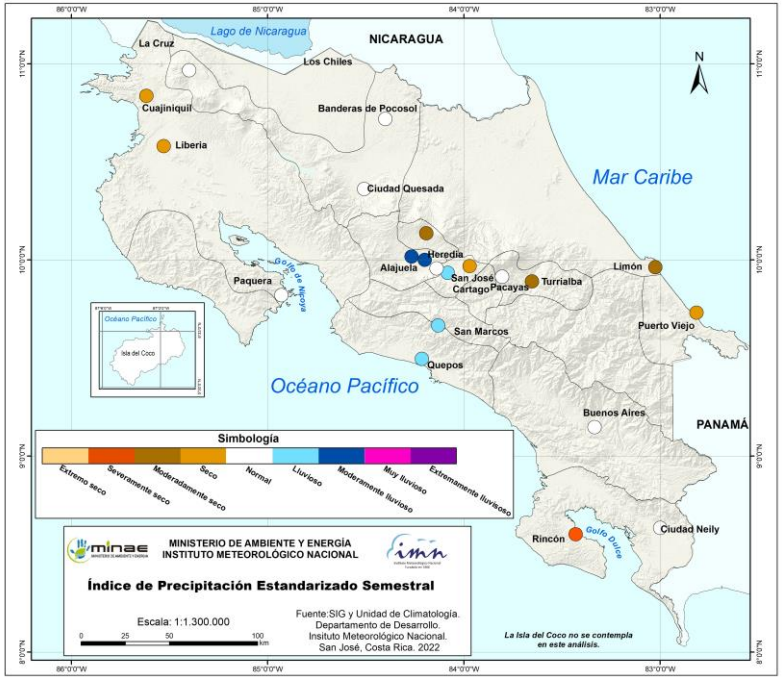

Anual (may-abr)

# Índice de precipitación estandarizado (SPI)

## Periodo base CLINO



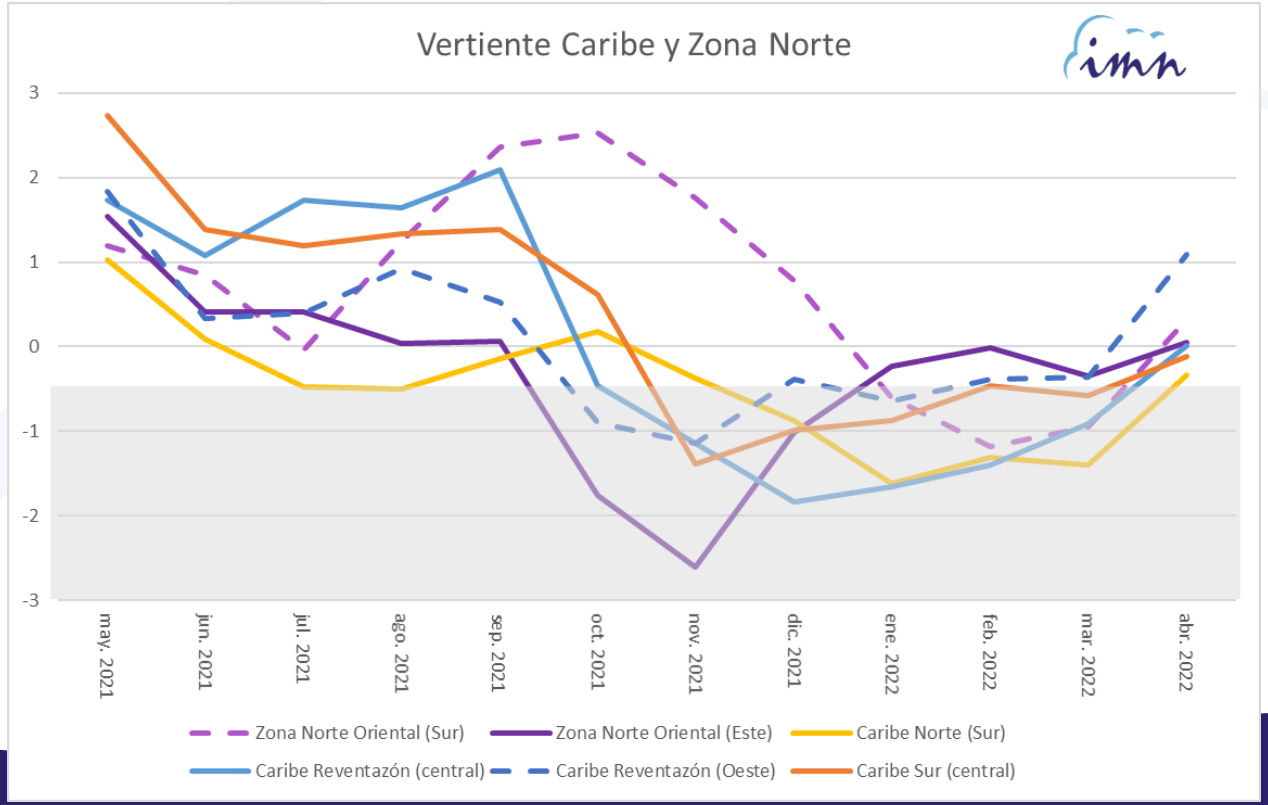

**Trimestral (feb-abr)**




**Semestral (nov-abr)**

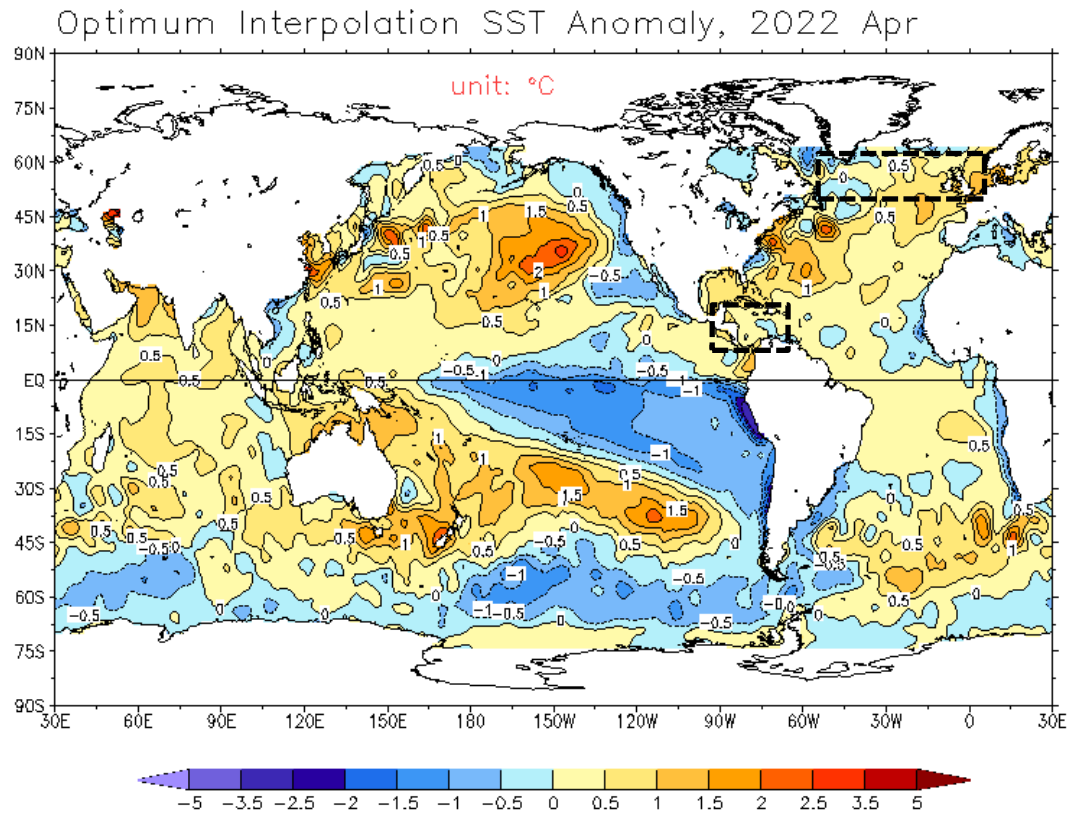
# Índice de precipitación estandarizado (SPI)

## Periodo base CLINO

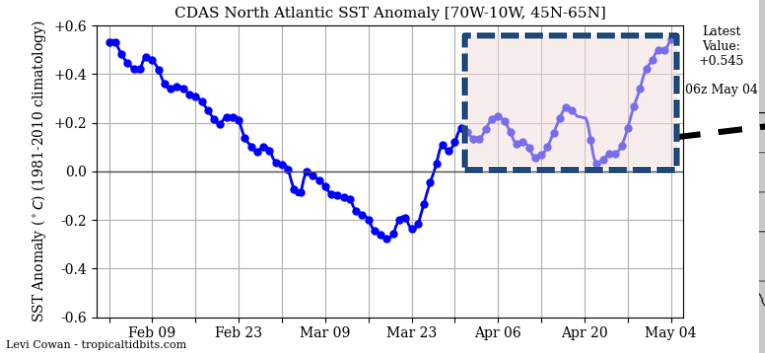


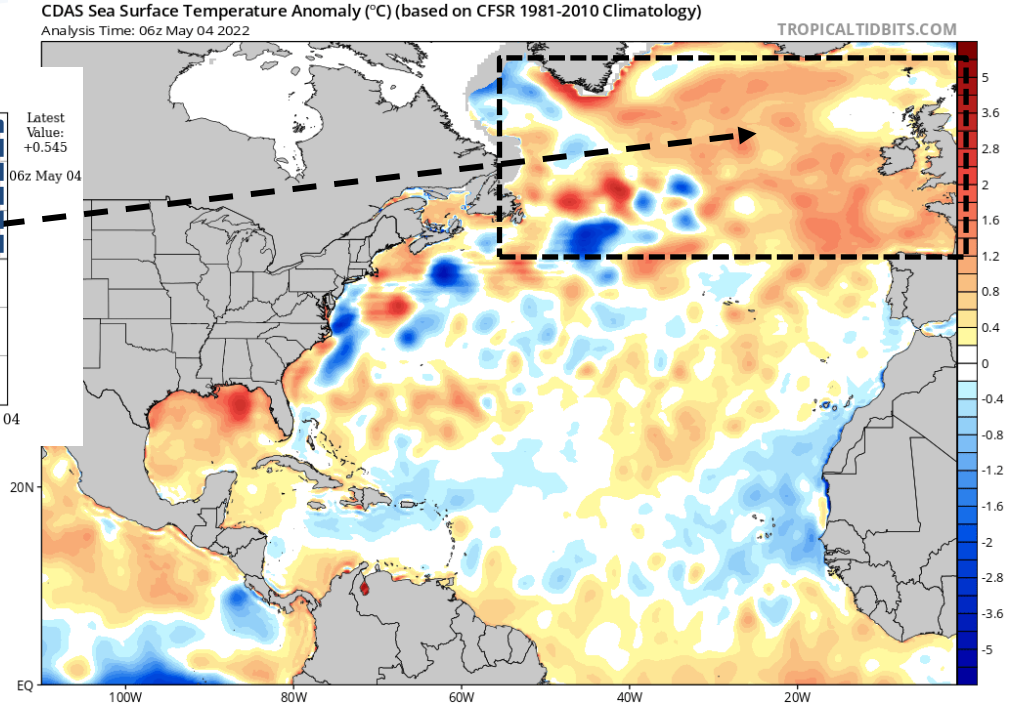
# Monitoreo de la temperatura superficial del Océano Atlántico

# Monitoreo TSM “Océano Atlántico”

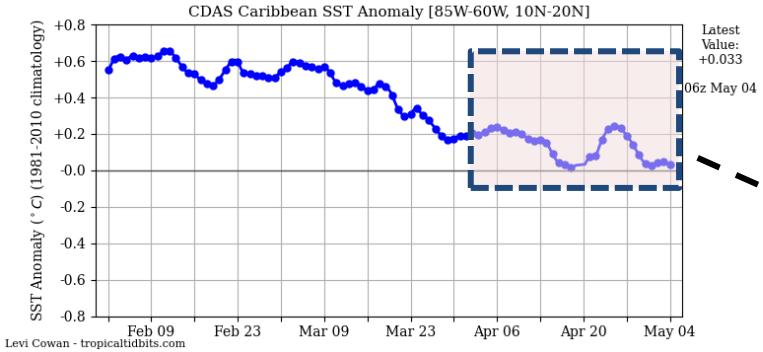


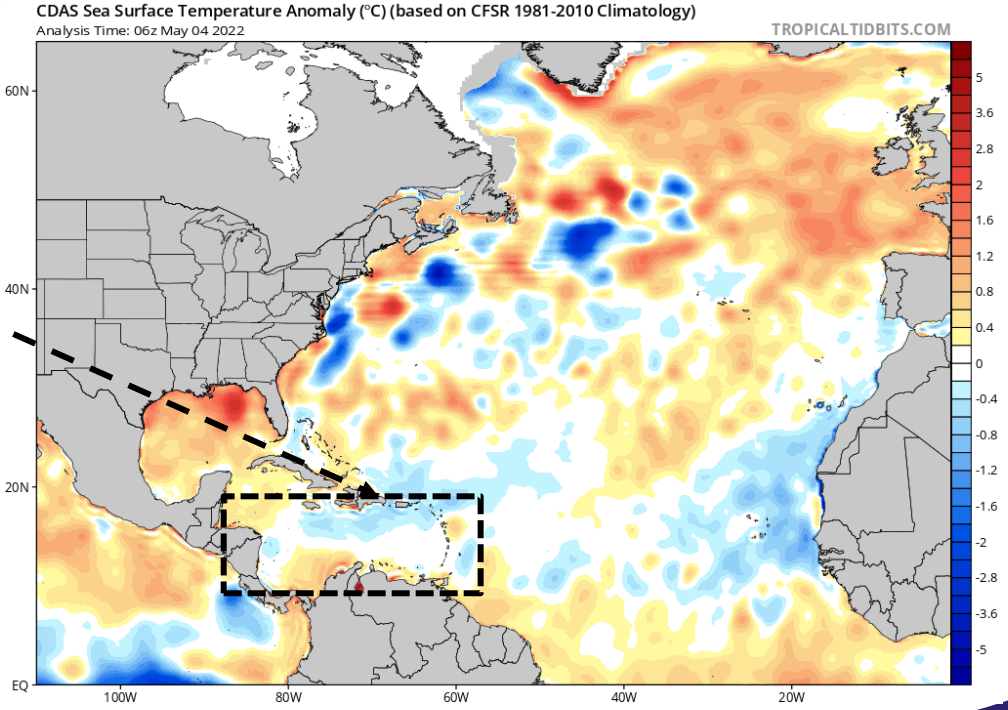
# Monitoreo TSM “Océano Atlántico”



# Monitoreo TSM “Mar Caribe”

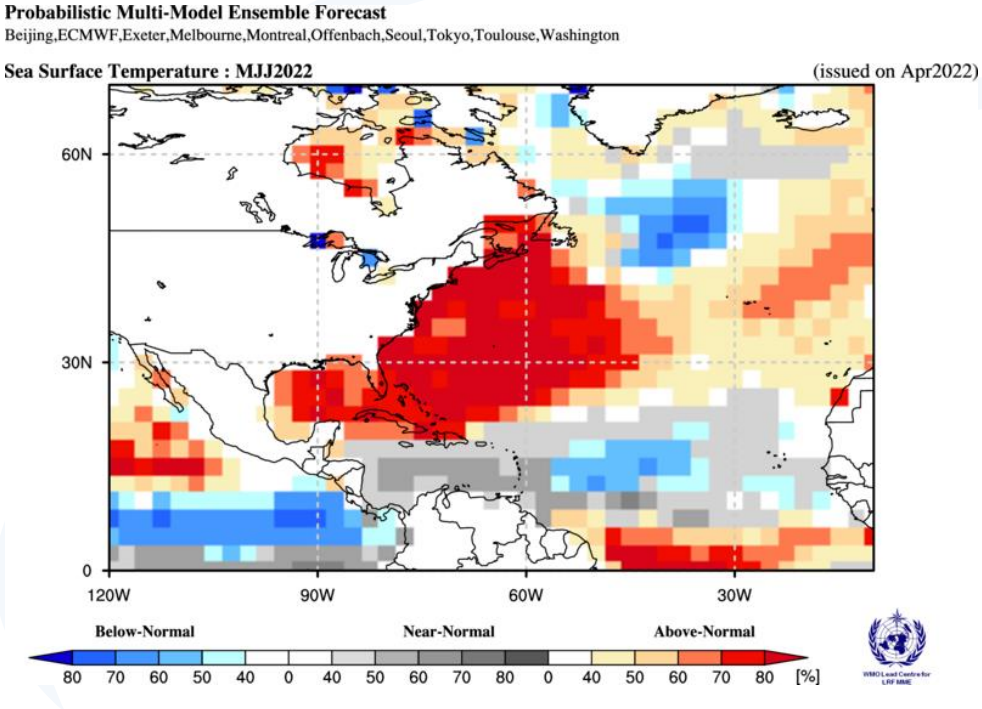



Instituto Meteorológico Nacional
Fundado en 1888

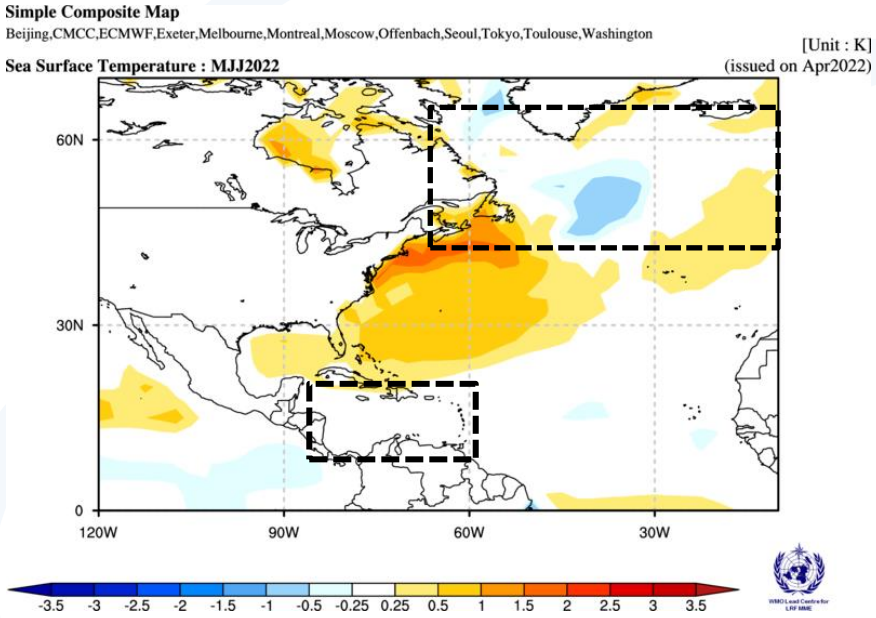
COSTA RICA

# Pronóstico probabilístico de TSM
## Ensamble modelos de la OMM



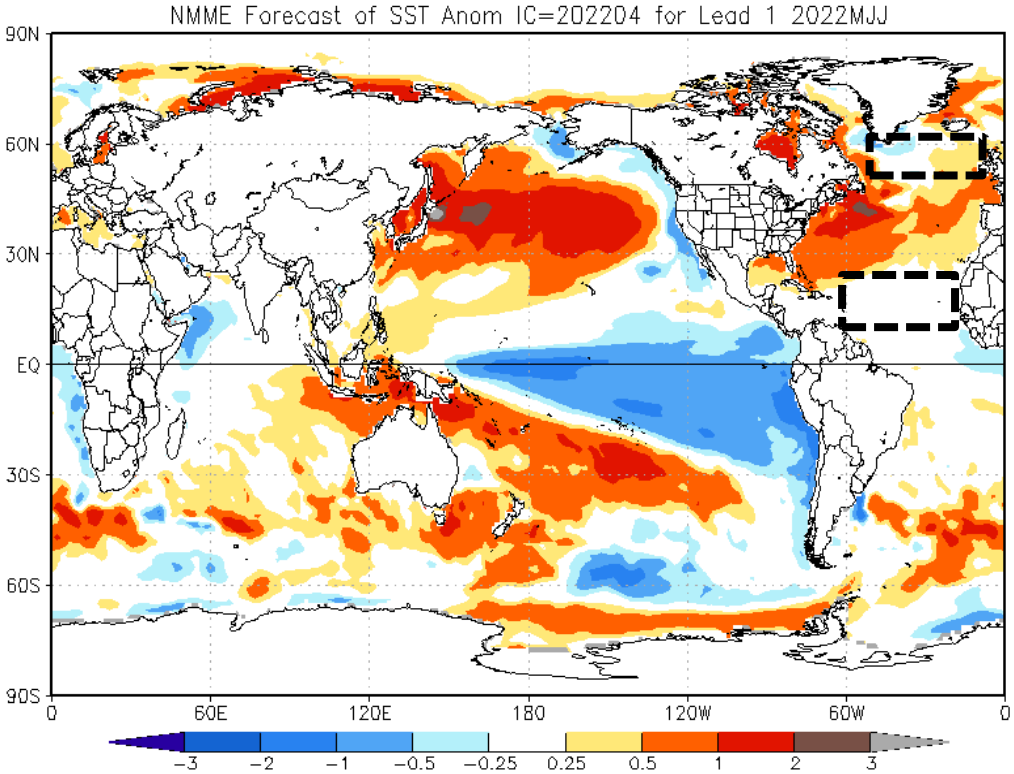

MJJ

# Pronóstico determinístico de TSM
## Ensamble modelos de la OMM




MJJ

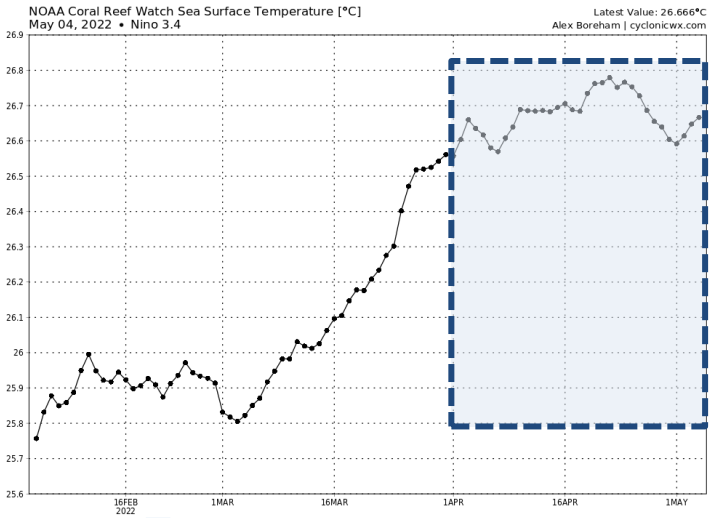
# Pronóstico determinístico de TSM
## Ensamble modelos NMME (Norteamérica)

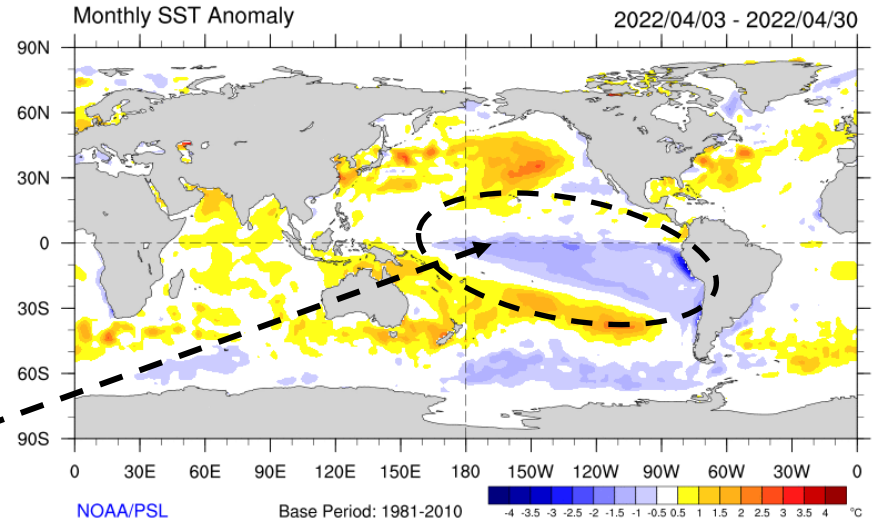



MJJ

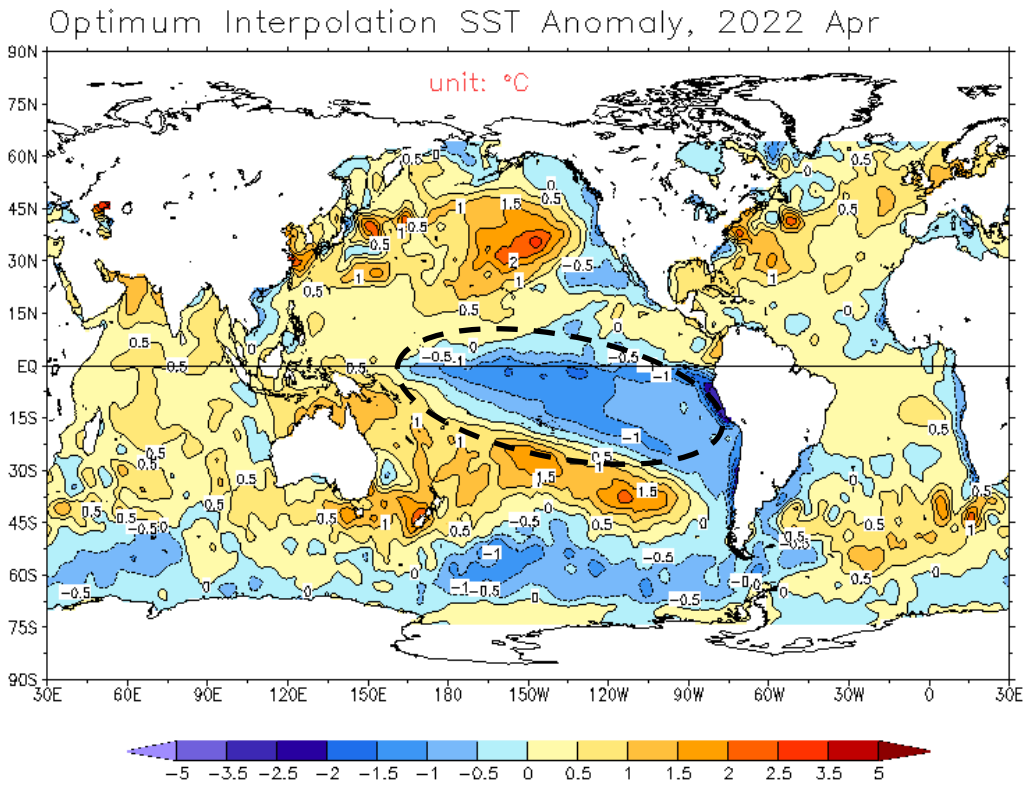
# Monitoreo Fenómeno ENOS

# Monitoreo fenómeno “ENOS” (La Niña)

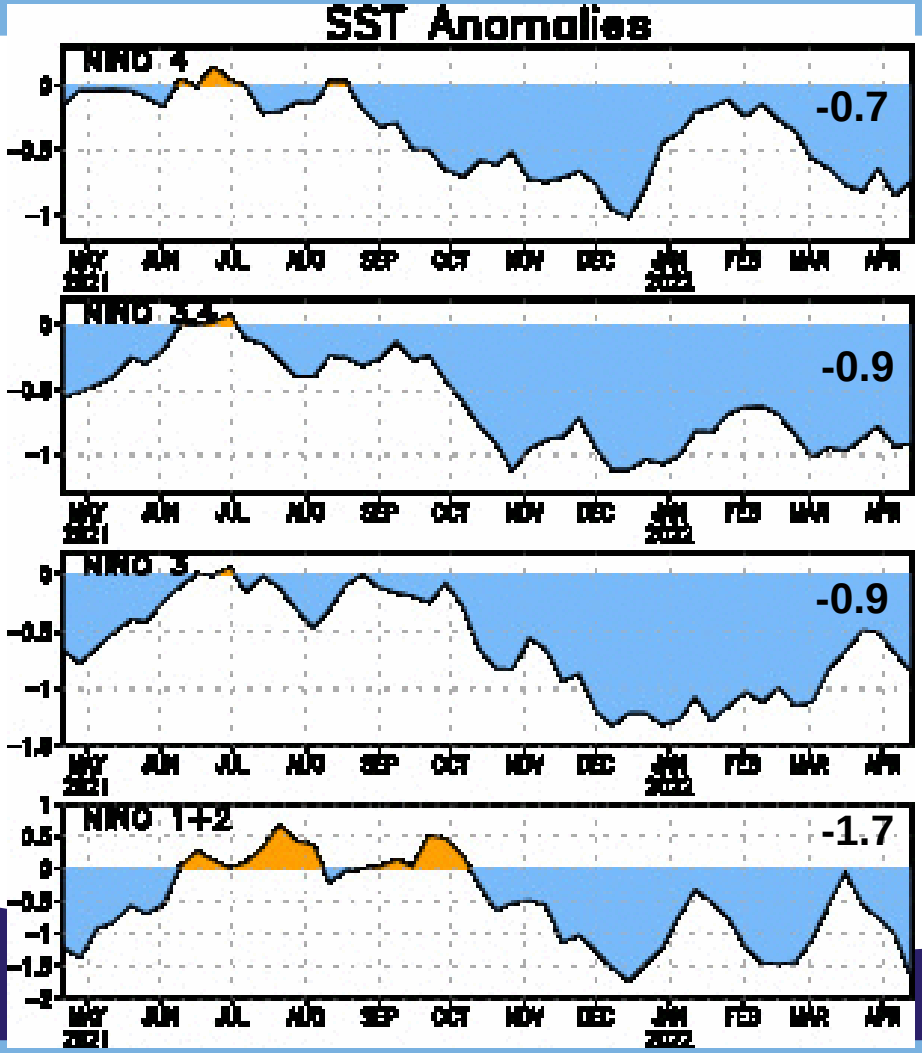


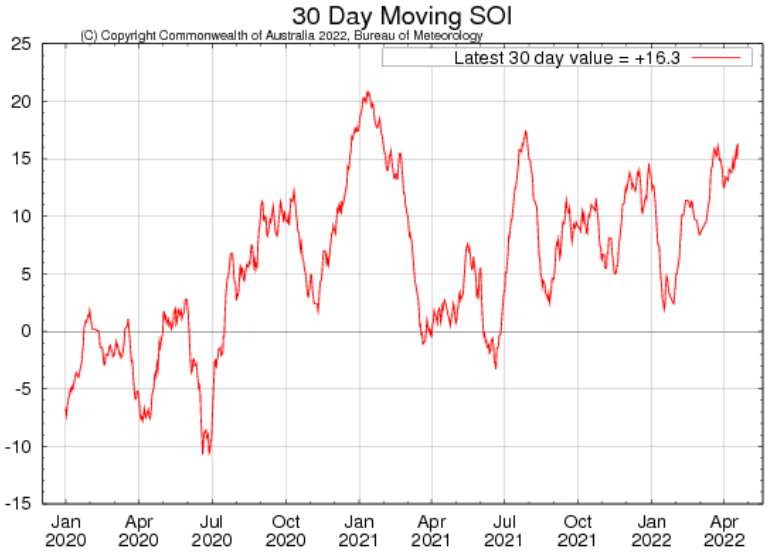



# Monitoreo fenómeno “ENOS” (La Niña)

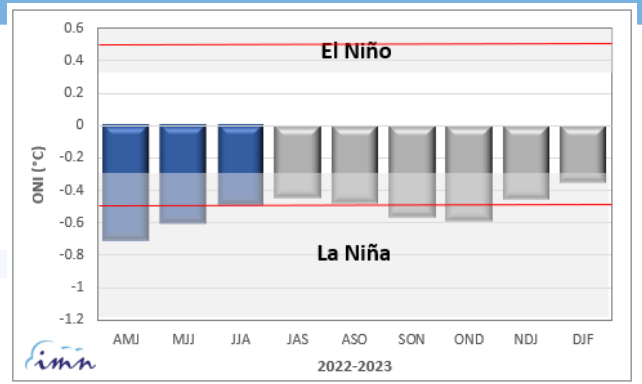


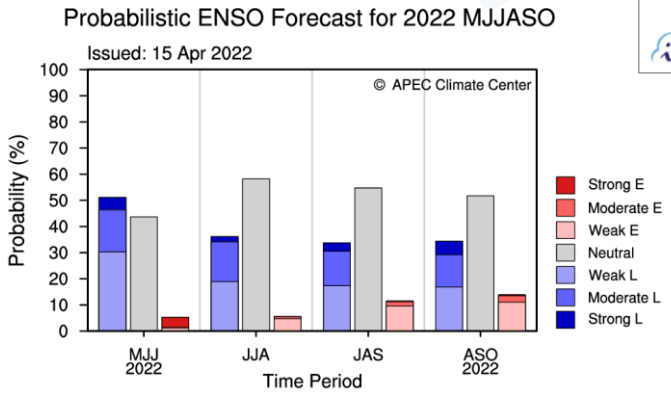
# Monitoreo fenómeno “ENOS” (La Niña)



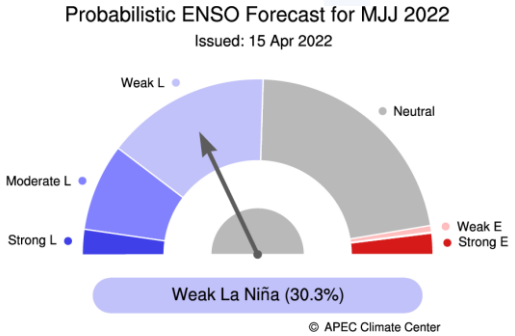



# Monitoreo fenómeno “ENOS”: Sistema de Alerta Temprana



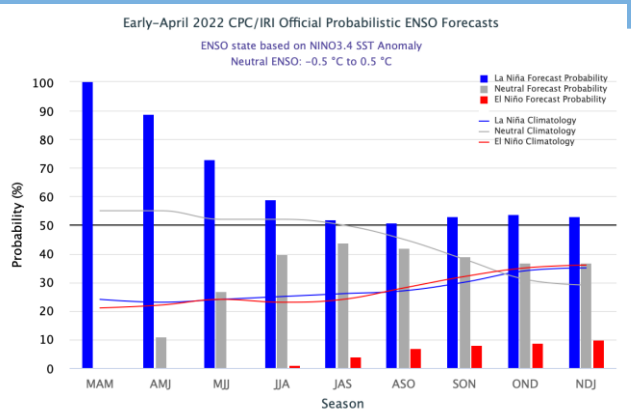

* ENSO Intensity based on 3M Mean Nino3.4 SST Anomaly (Category Boundaries: +/-1.5, 1.0, 0.5°C)

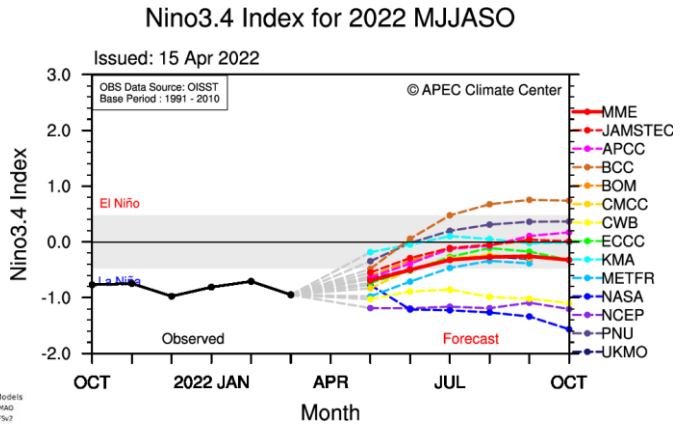


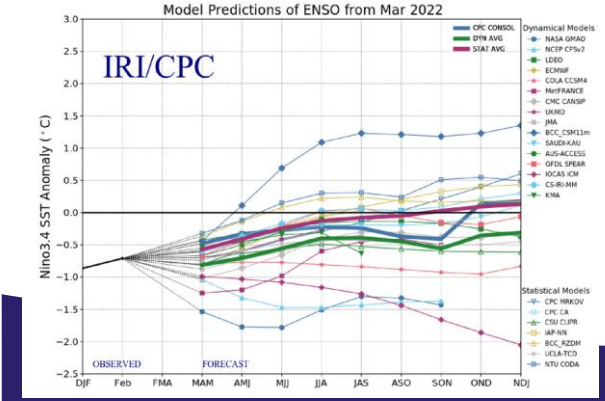

* ENSO Intensity based on 3M Mean Nino3.4 SST Anomaly (Category Boundaries: +/-1.5, 1.0, 0.5°C)

Se mantiene la perspectiva de ENOS en su fase La Niña de débil intensidad en la temporada de MJJ-2022.

# Monitoreo fenómeno “ENOS” (La Niña)

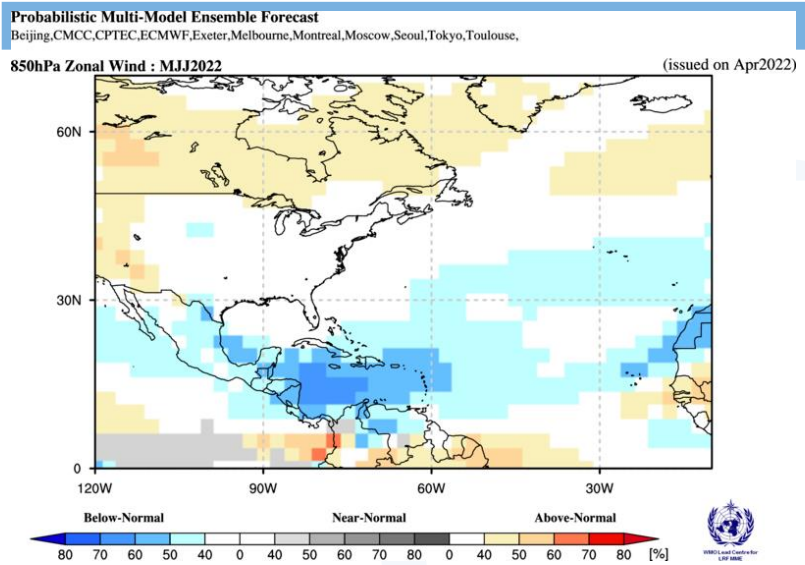


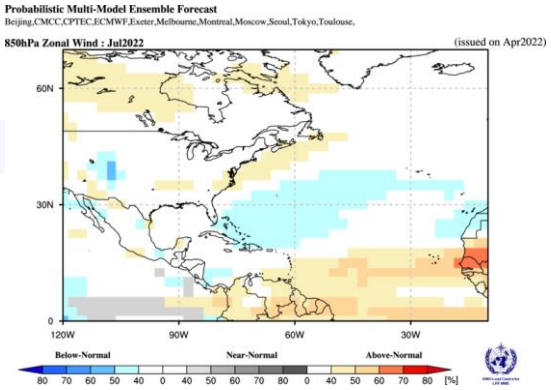



# Análisis de modelos numéricos globales y locales

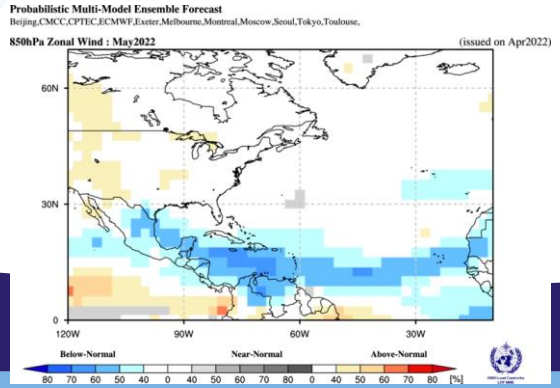
# Pronóstico probabilístico de viento
## Ensamble modelos de la OMM



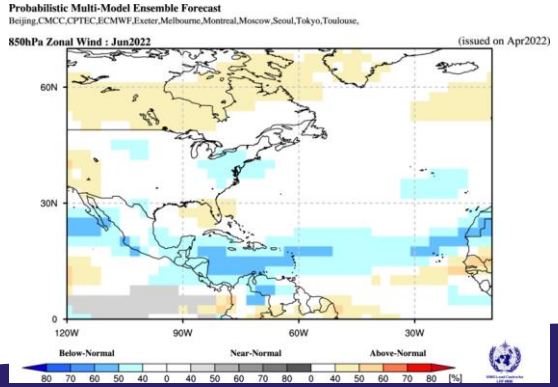

MJJ




Julio

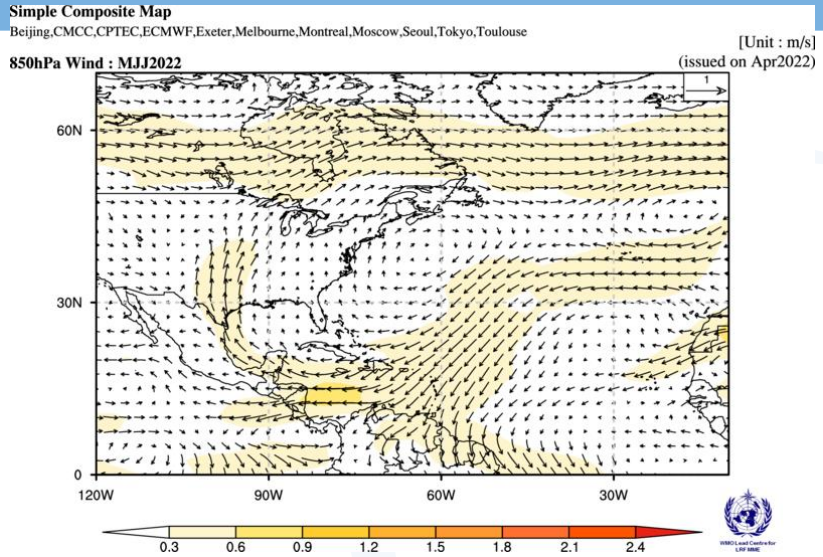



Mayo

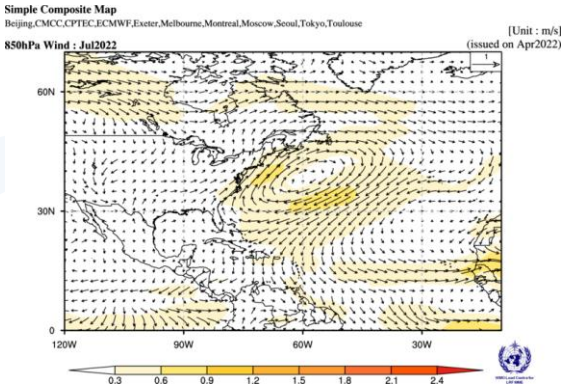



Junio

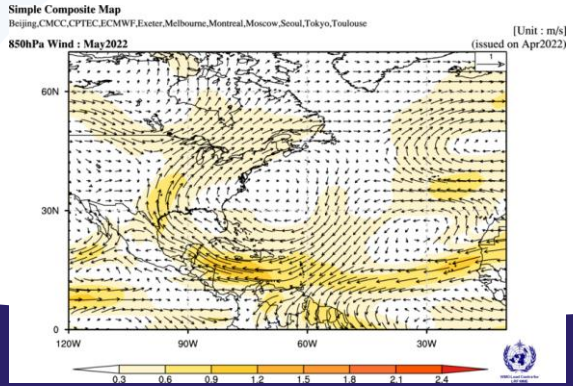
# Pronóstico determinístico de viento, ensamble OMM



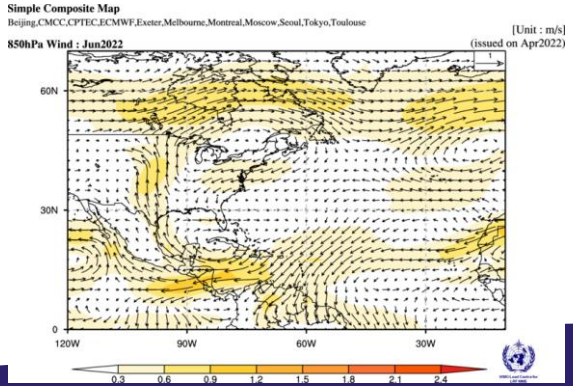

MJJ




Julio

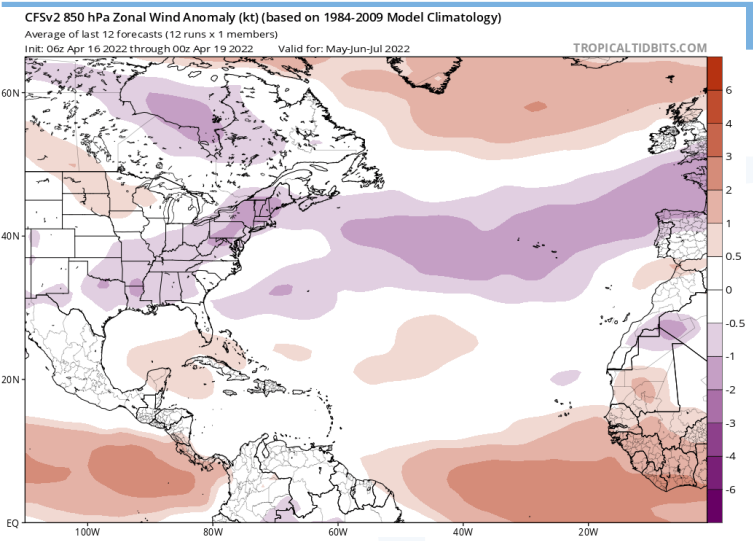



Mayo

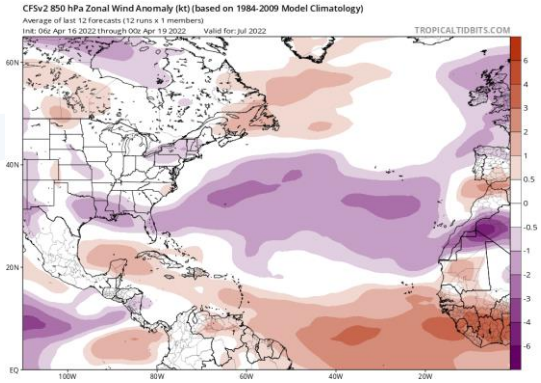



Junio

# Pronóstico determinístico de viento, ensamble CFS

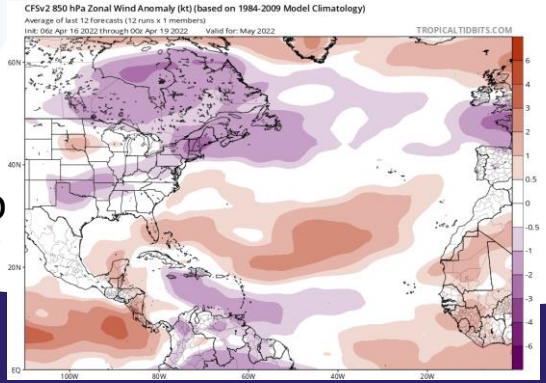


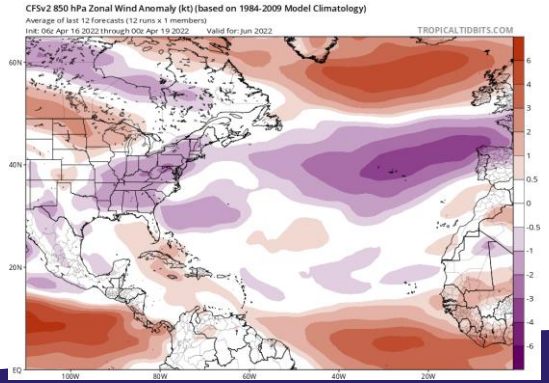

MJJ




Julio

Mayo



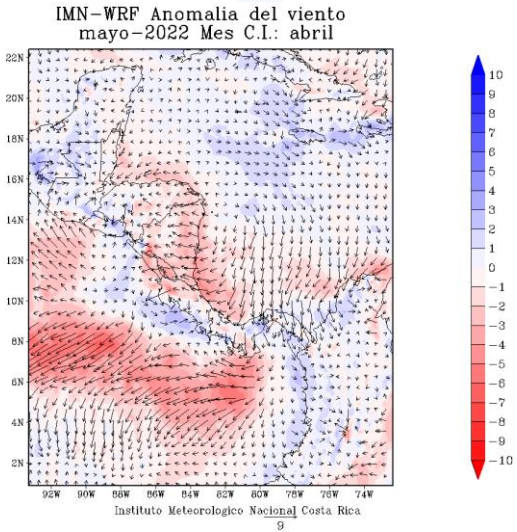



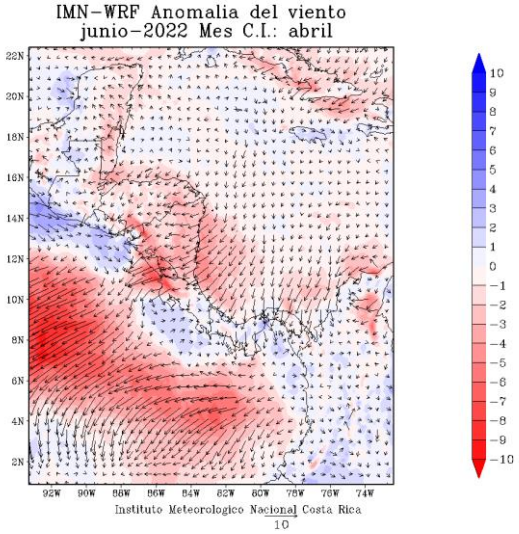

Junio

Instituto Meteorológico Nacional
Fundado en 1888

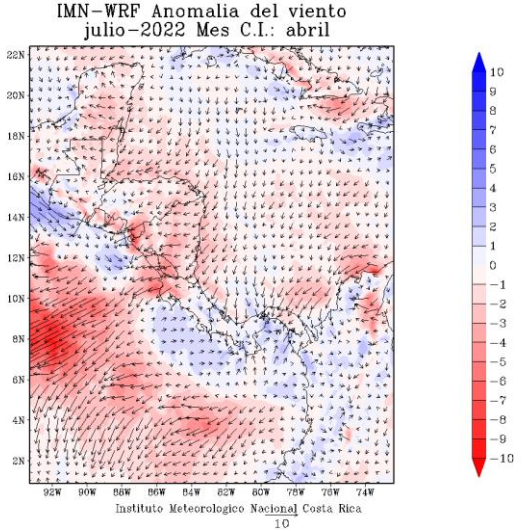
# Pronóstico de viento: Modelo WRF-Clima-IMN

Mayo



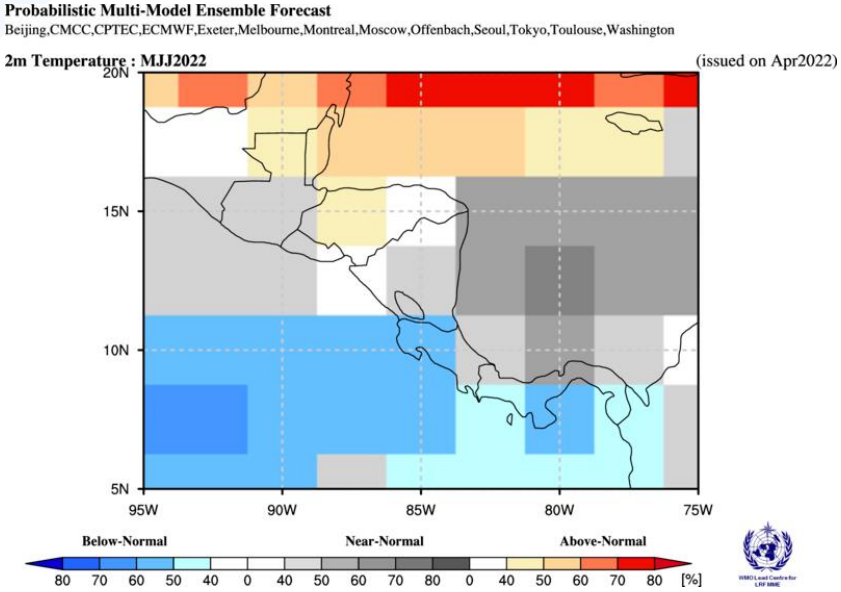




Junio

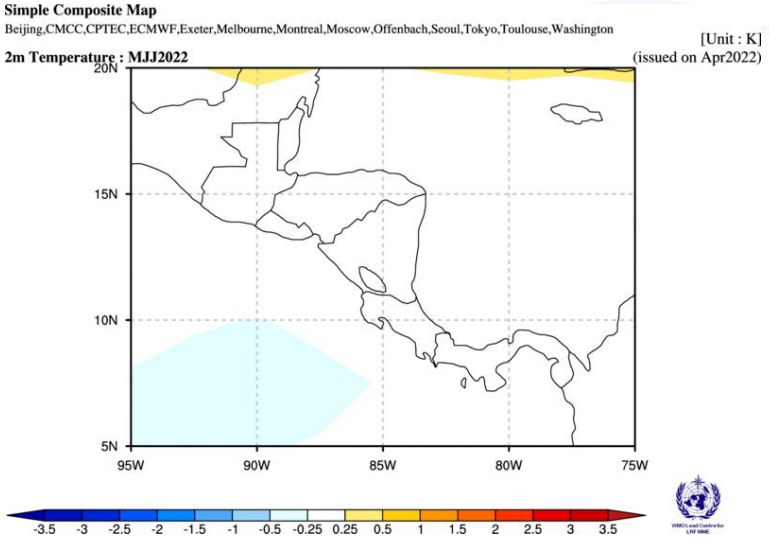



Julio

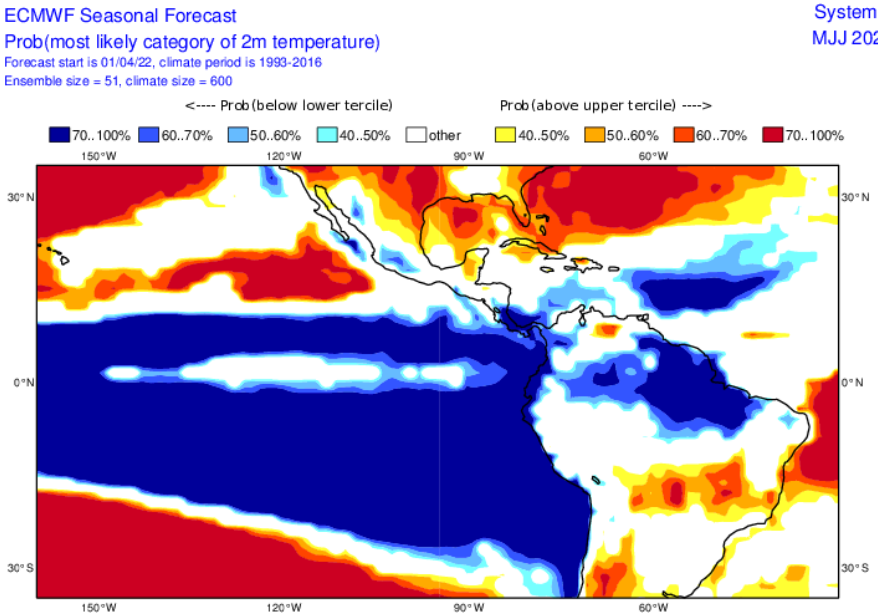
# Pronóstico probabilístico de temperatura, ensamble OMM

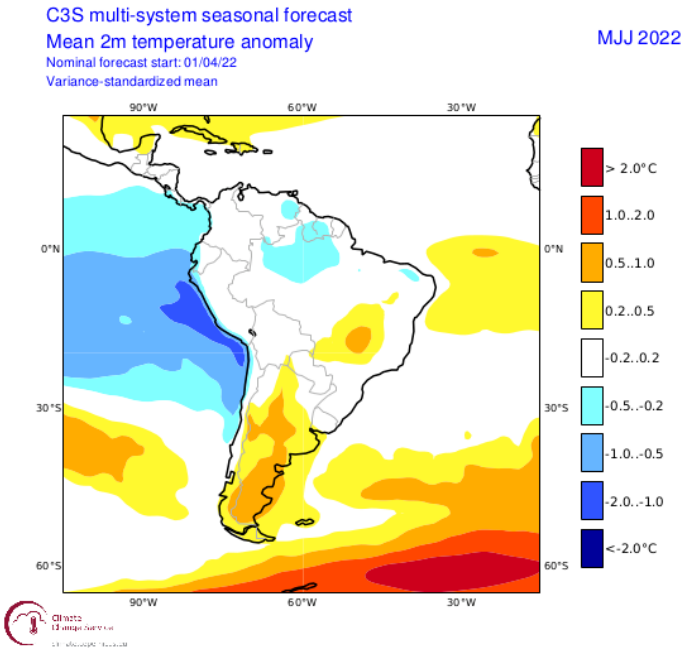


# Pronóstico determinístico de temperatura, ensamble OMM



# Pronóstico probabilístico de temperatura, ECMWF y C3S



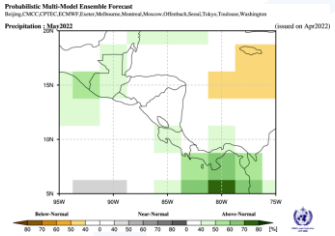




Instituto Meteorológico Nacional
Fundado en 1888

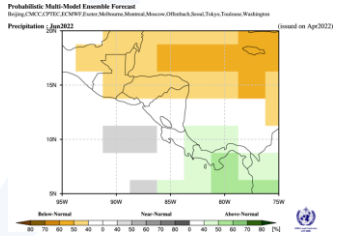
COSTA RICA

# Pronóstico probabilístico de lluvia, ensamble OMM

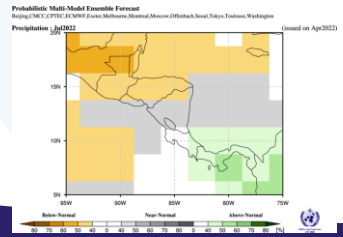
Mayo

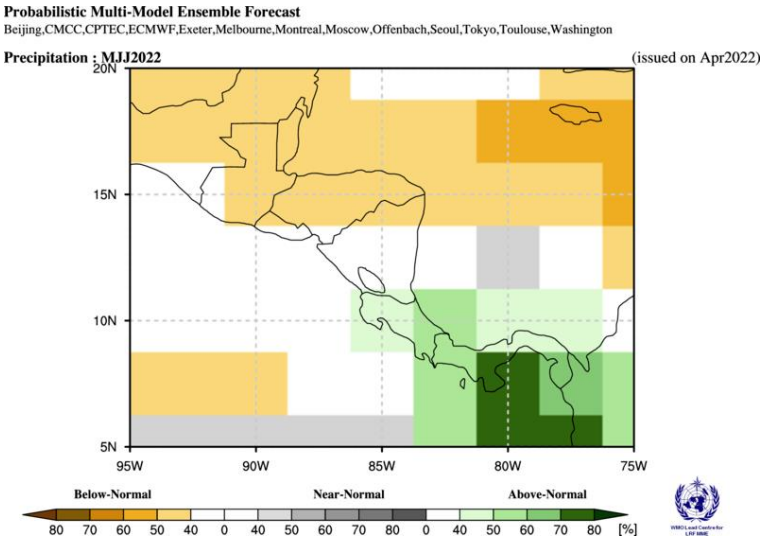



Junio



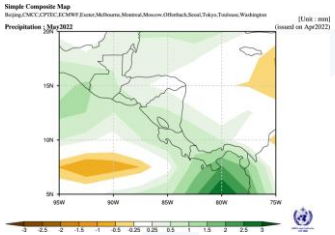

Julio



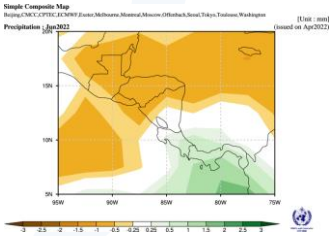



# Pronóstico determinístico de lluvia, ensamble OMM

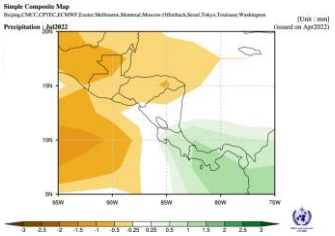
Mayo

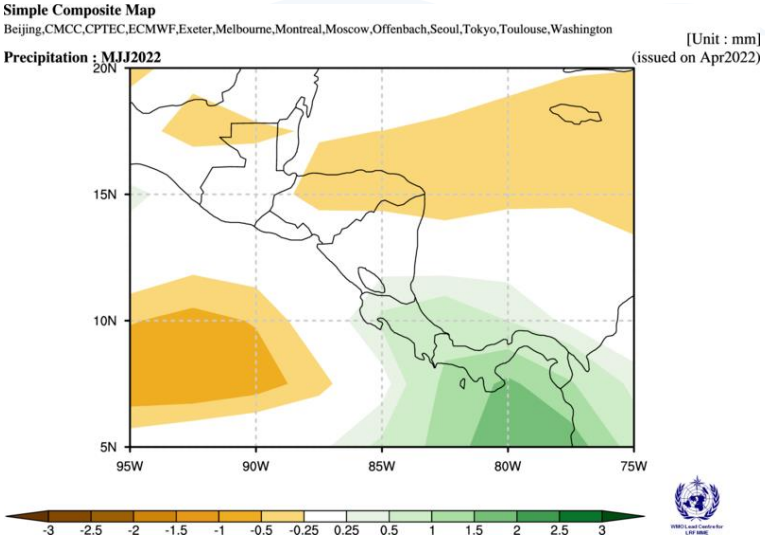



Junio

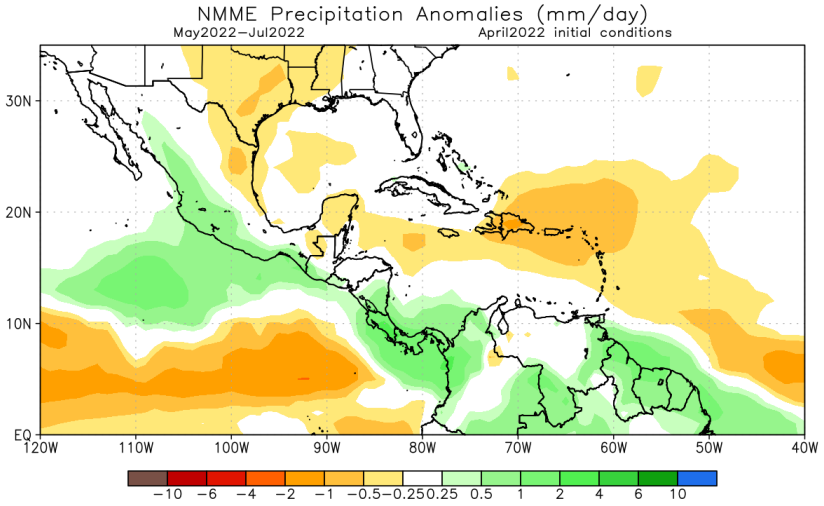


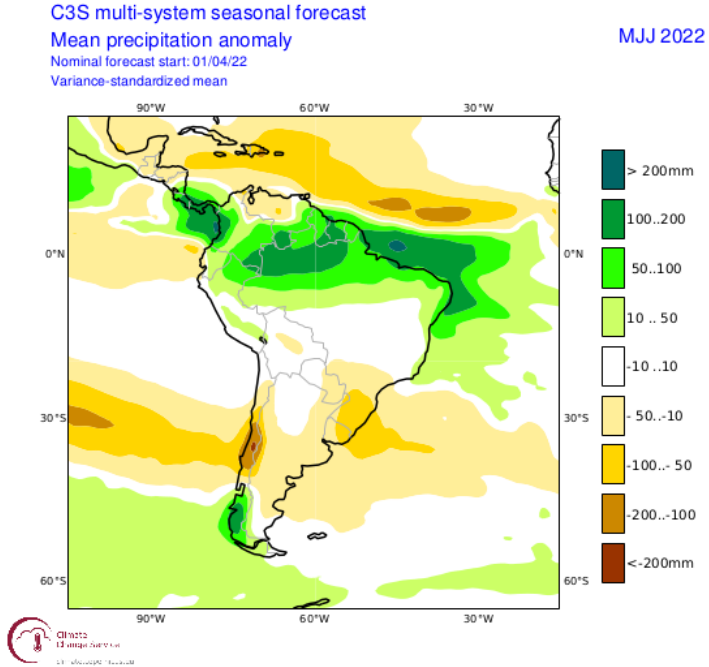

Julio



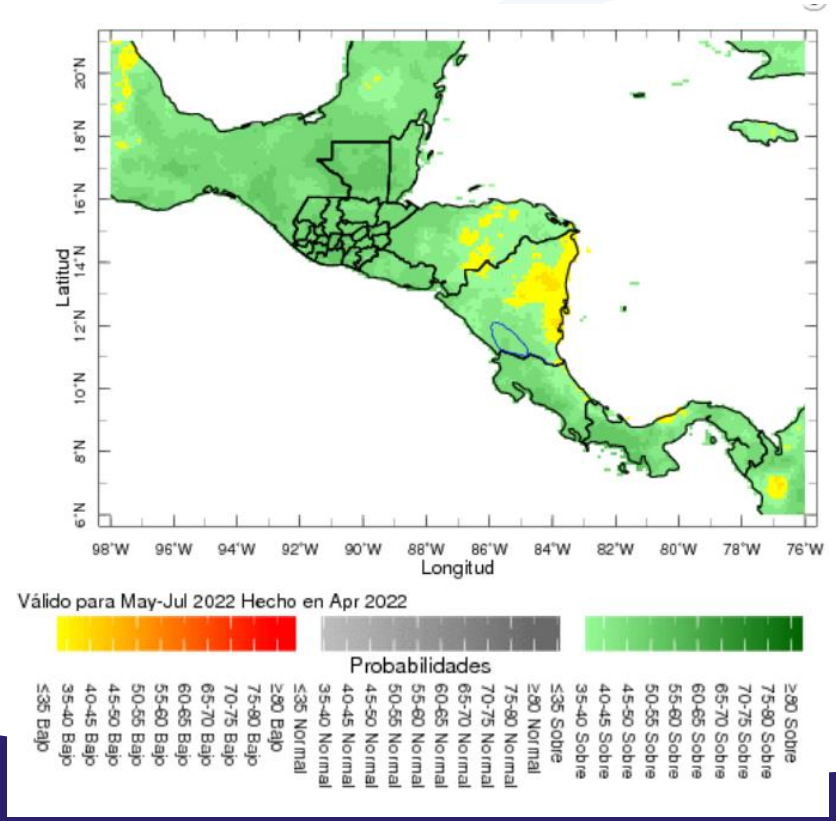



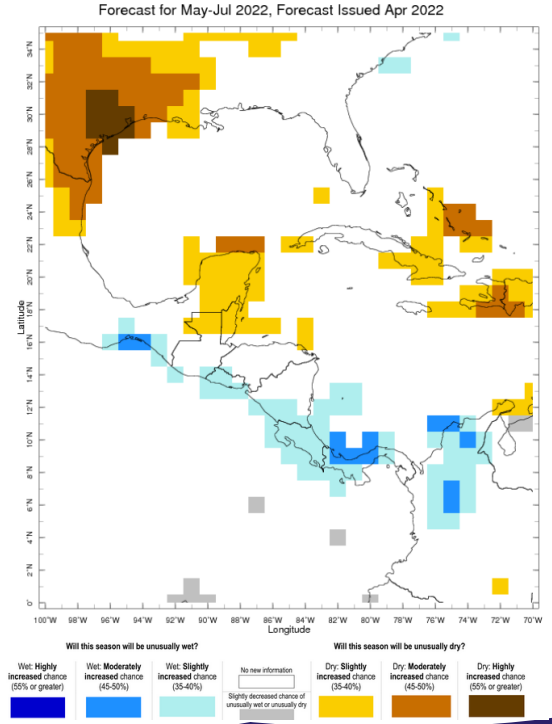
# Pronóstico de lluvia
# NMME y C3S-MME



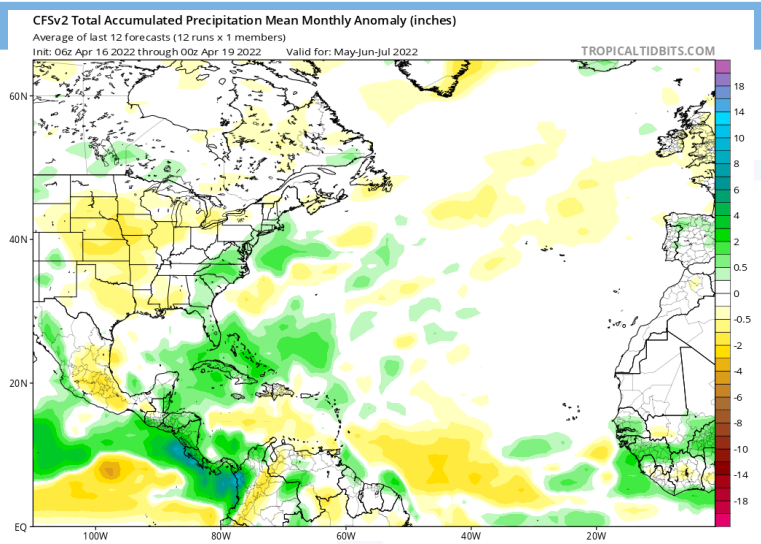



# Pronostico determinístico y probabilístico de lluvias
# IRI

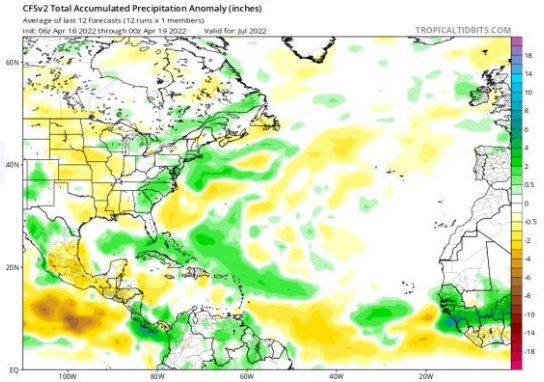


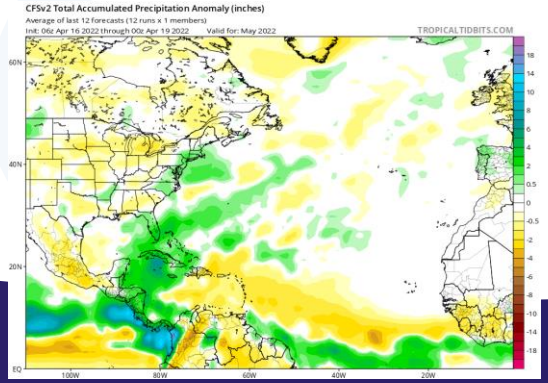
# Pronóstico determinístico de lluvia
# Ensamble modelos de la CFS



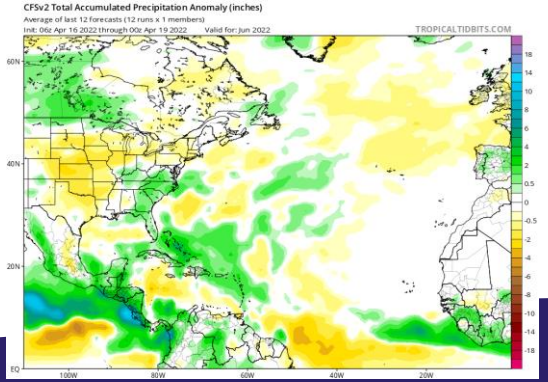

MJJ




Julio




Mayo

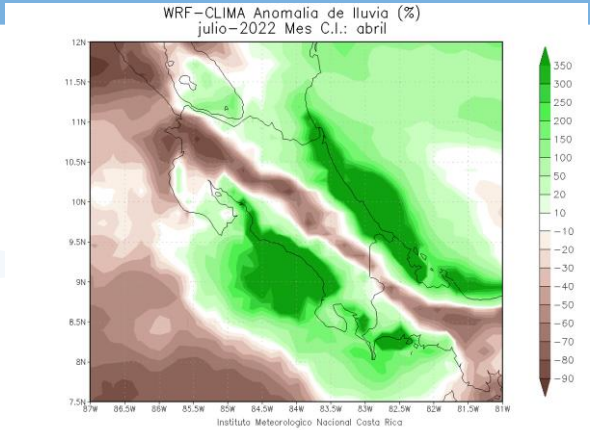



Junio

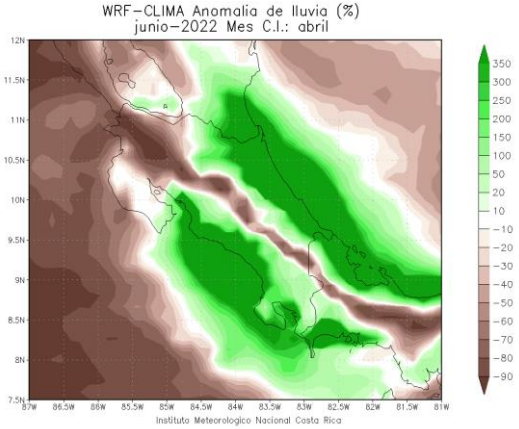
Instituto Meteorológico Nacional
Fundado en 1888

COSTA RICA

# Pronóstico de lluvia: Modelo WRF-Clima-IMN

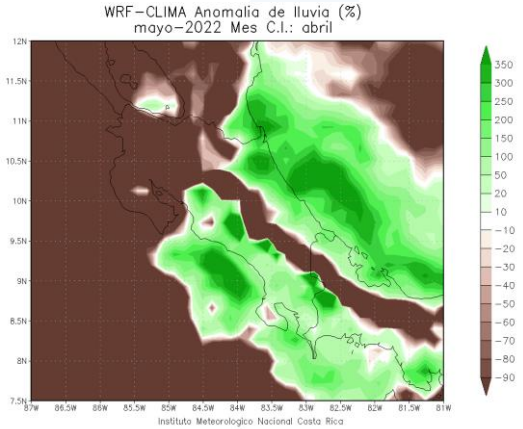



Julio

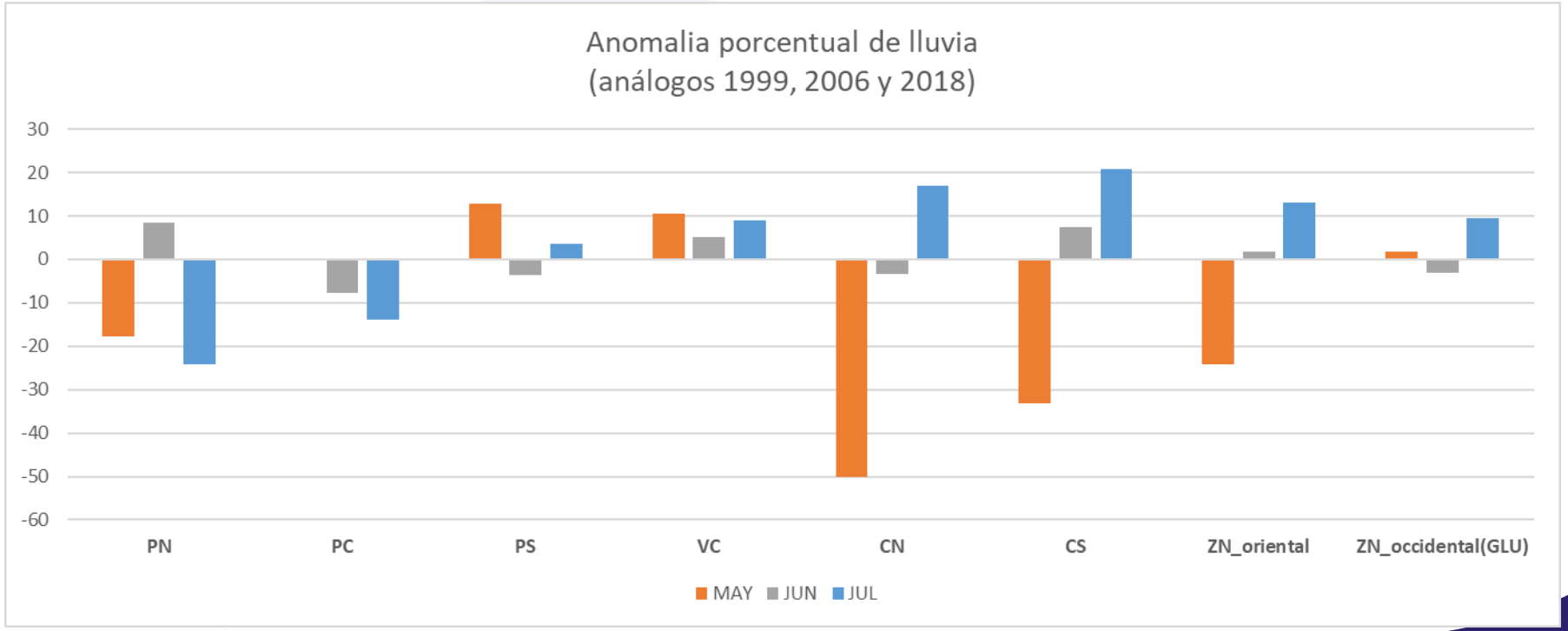



Junio

Mayo



# Años análogos



# Temporada de Ciclones Tropicales de la cuenca del Atlántico Norte

## Cuenca Atlántico (Océano Atlántico Tropical, mar Caribe y golfo de México)

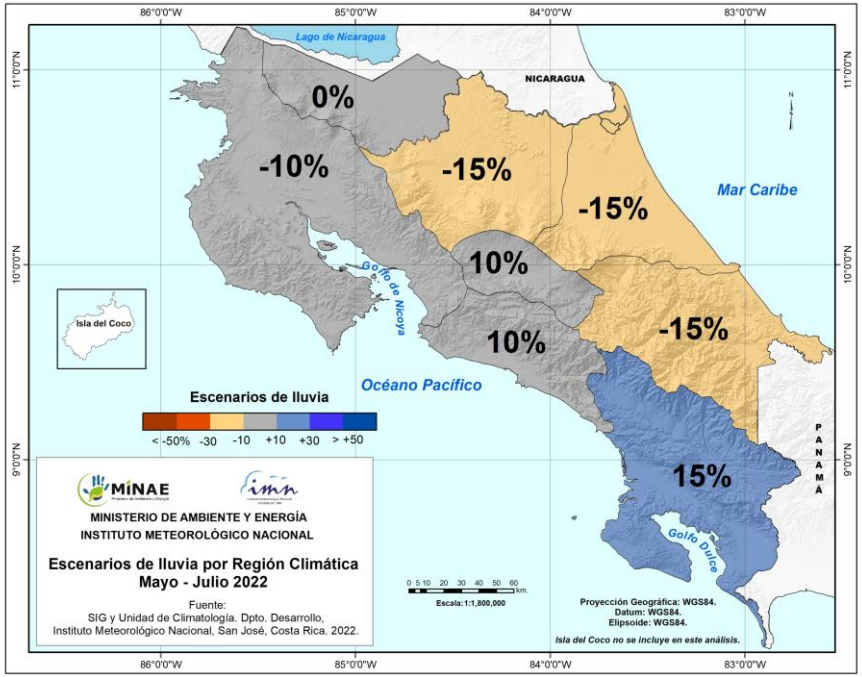
| Temporada normal (1991-2020) | | |
|---|---|---|
| TORMENTAS | HURACANES (1,2) | HURACANES (3,4,5) |
| **7** | **4** | **3** |

| Temporada récord 2020 | | |
|---|---|---|
| TORMENTAS | HURACANES (1,2) | HURACANES (3,4,5) |
| **16** | **8** | **6** |

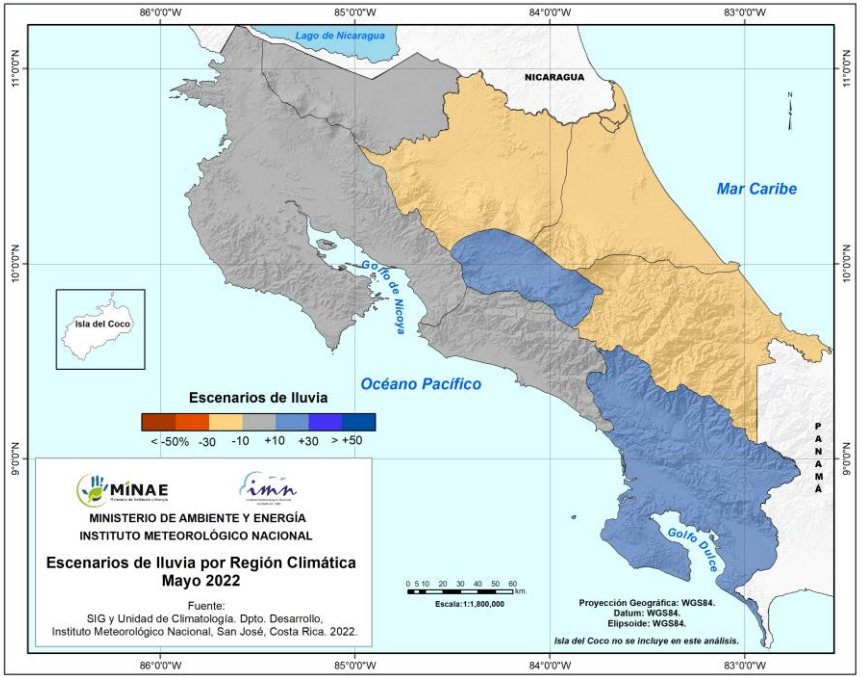
| Pronóstico de temporada 2022 | | |
|---|---|---|
| TORMENTAS | HURACANES (1,2) | HURACANES (3,4,5) |
| **19** | **9** | **4** |

# Pronostico del trimestre

# Pronóstico de lluvias (%)




Mayo-Julio

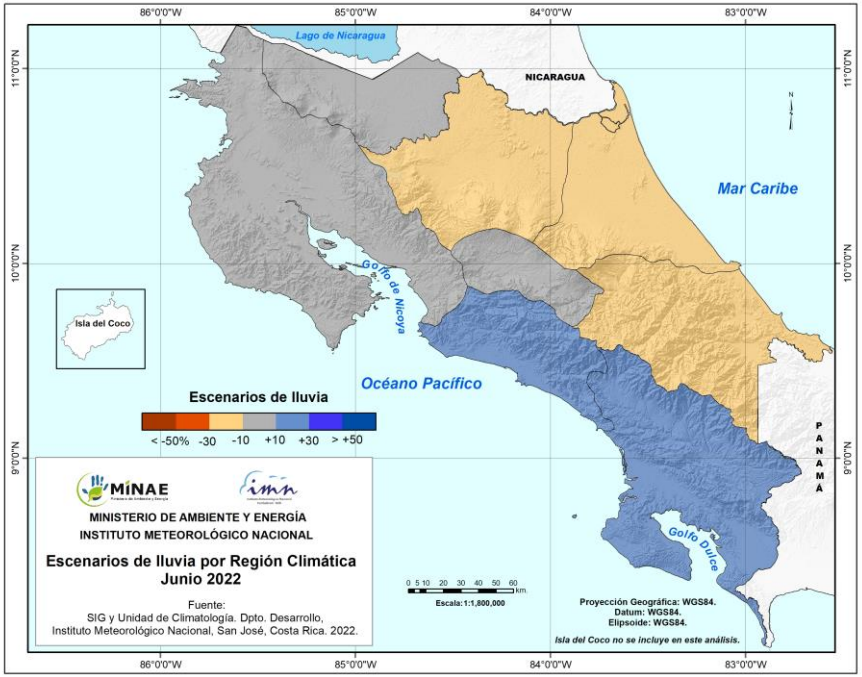



Mayo

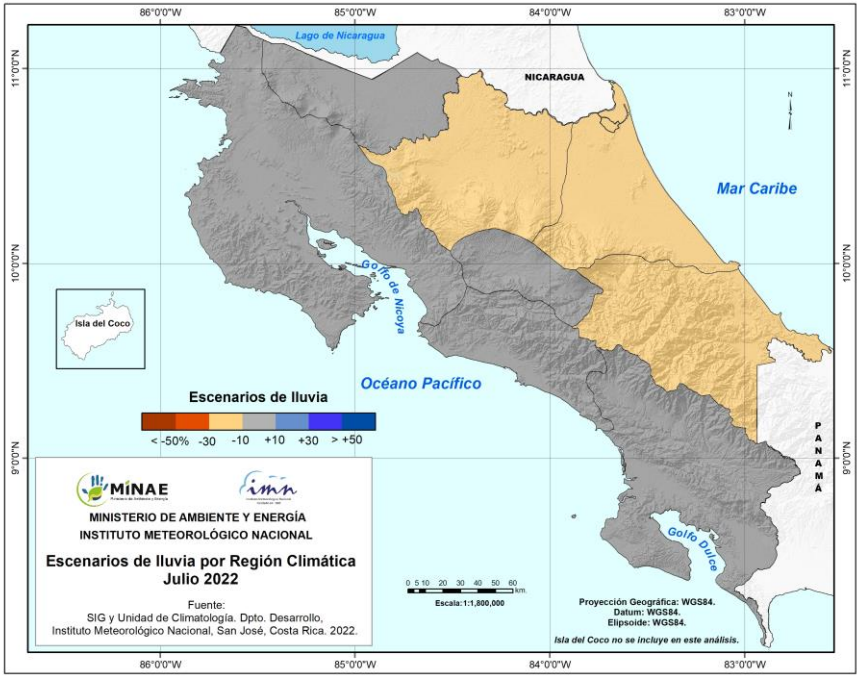

Instituto Meteorológico Nacional
Fundado en 1888

COSTA RICA

# Pronóstico de lluvias (%)




Junio



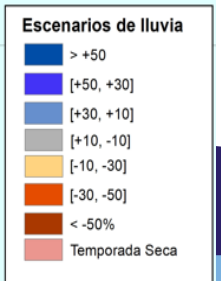

Julio


Instituto Meteorológico Nacional
Fundado en 1888

COSTA RICA

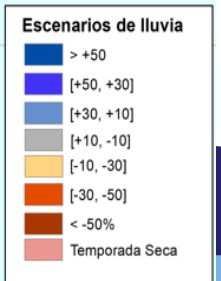
# Resumen de la información anterior

| Región | Mayo | Junio | Julio | MJJ |
|---|---|---|---|---|
| Pacífico Norte | Normal | Normal | Normal | -10% |
| Pacífico Central | Normal | Arriba normal | Normal | 10% |
| Pacífico Sur | Arriba normal | Arriba normal | Normal | 15% |
| Valle Central | Arriba normal | Normal | Normal | 10% |
| Zona Norte Occidental (GLU) | Normal | Normal | Normal | 0% |
| Zona Norte Oriental | Bajo normal | Bajo normal | Bajo normal | -15% |
| Caribe Norte | Bajo normal | Bajo normal | Bajo normal | -15% |
| Caribe Sur | Bajo normal | Bajo normal | Bajo normal | -15% |

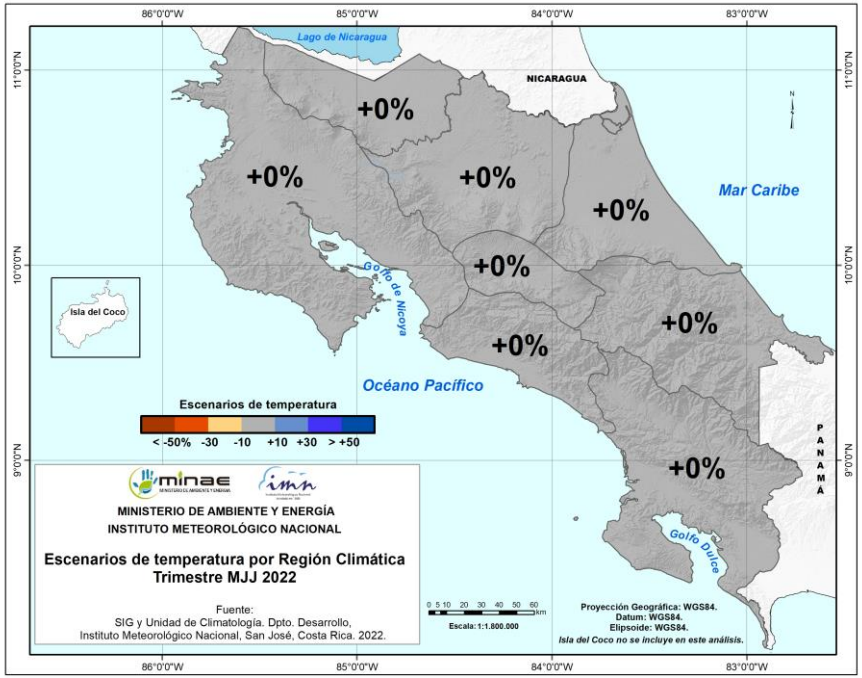


# Estimaciones de lluvia pronosticada

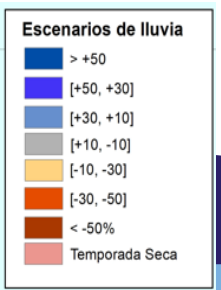
| REGION | may-22 | | jun-22 | | jul-22 | | Trimestre | |
|---|---|---|---|---|---|---|---|---|
| | NORMAL | 2022 | NORMAL | 2022 | NORMAL | 2022 | NORMAL | 2022 |
| PACIFICO NORTE | 217 | [195,238] | 248 | [223,273] | 183 | [165,201] | 216 | 194 |
| PACIFICO SUR | 462 | [508,600] | 411 | [452,534] | 375 | [338,413] | 416 | 478 |
| PACIFICO CENTRAL | 378 | [340,416] | 366 | [403,476] | 348 | [313,383] | 364 | 400 |
| VALLE CENTRAL | 283 | [312,368] | 268 | [241,295] | 196 | [177,216] | 249 | 249 |
| ZONA NORTE OCCIDENTAL | 252 | [226,277] | 352 | [317,387] | 370 | [333,407 | 325 | 325 |
| ZONA NORTE ORIENTAL | 324 | [227,291] | 414 | [289,372] | 457 | [320,411] | 398 | 338 |
| CARIBE NORTE | 353 | [247,318] | 640 | [448,576] | 470 | [329,423] | 488 | 415 |
| CARIBE SUR | 282 | [197,254] | 268 | [189,241] | 315 | [220,283] | 288 | 245 |



# Pronóstico de temperatura media (%)

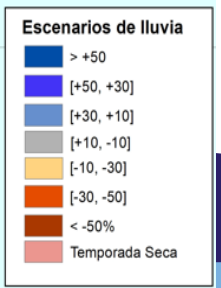



Mayo-Julio



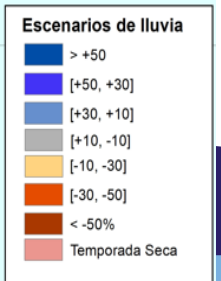
# Pronóstico de temperatura media (%)

| ID | Región | Mayo | Junio | Julio | MJJ |
|---|---|---|---|---|---|
| 1 | Pacífico Norte | Normal | Normal | Normal | Normal |
| 3 | Pacífico Central | Normal | Normal | Normal | Normal |
| 4 | Pacífico Sur | Normal | Normal | Normal | Normal |
| 2 | Valle Central | Normal | Normal | Normal | Normal |
| 6 | Zona Norte Occidental (GLU) | Normal | Normal | Normal | Normal |
| 5 | Zona Norte Oriental | Normal | Normal | Normal | Normal |
| 7 | Caribe Norte | Normal | Normal | Normal | Normal |
| 8 | Caribe Sur | Normal | Normal | Normal | Normal |

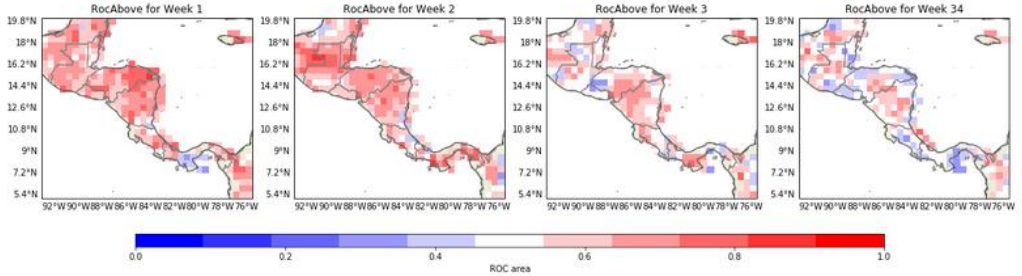


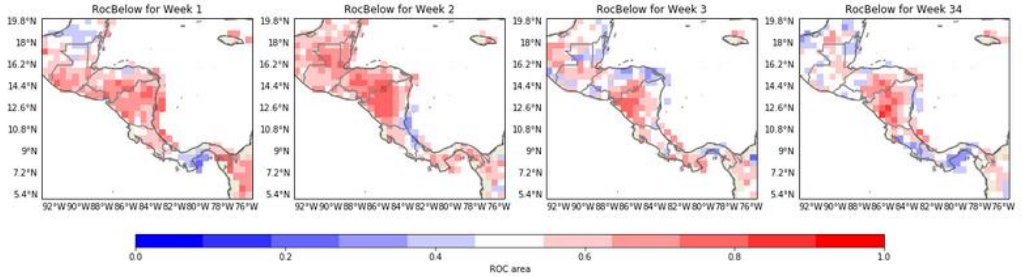
# Estimaciones de temperatura media pronosticada

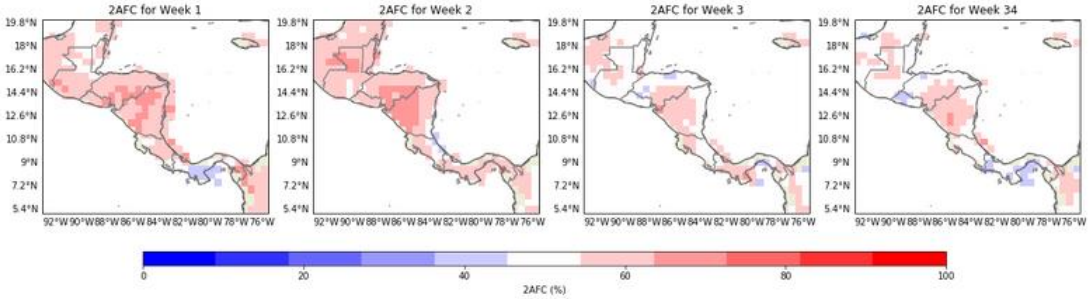
| REGION | Mayo | | Junio | | Julio | | Trimestre | |
|---|---|---|---|---|---|---|---|---|
| | NORMAL | 2022 | NORMAL | 2022 | NORMAL | 2022 | NORMAL | 2022 |
| PACIFICO NORTE | 27 | [25,30] | 27 | [24,29] | 27 | [24,29] | 28 | [25,30] |
| PACIFICO SUR | 26 | [23,28] | 25 | [23,28] | 25 | [23,28] | 26 | [23,28] |
| PACIFICO CENTRAL | 27 | [24,29] | 26 | [24,29] | 26 | [24,29] | 27 | [24,29] |
| VALLE CENTRAL | 21 | [19,23] | 21 | [19,23] | 21 | [19,23] | 21 | [19,23] |
| ZONA NORTE OCCIDENTAL | 26 | [24,29] | 26 | [24,29] | 26 | [24,29] | 26 | [24,29] |
| ZONA NORTE ORIENTAL | 26 | [23,28] | 26 | [23,28] | 25 | [23,28] | 26 | [23,28] |
| CARIBE NORTE | 26 | [24,29] | 26 | [23,29] | 26 | [23,29] | 26 | [23,28] |
| CARIBE SUR | 25 | [23,28] | 25 | [23,28] | 24 | [23,28] | 25 | [22,27] |



# Época lluviosa



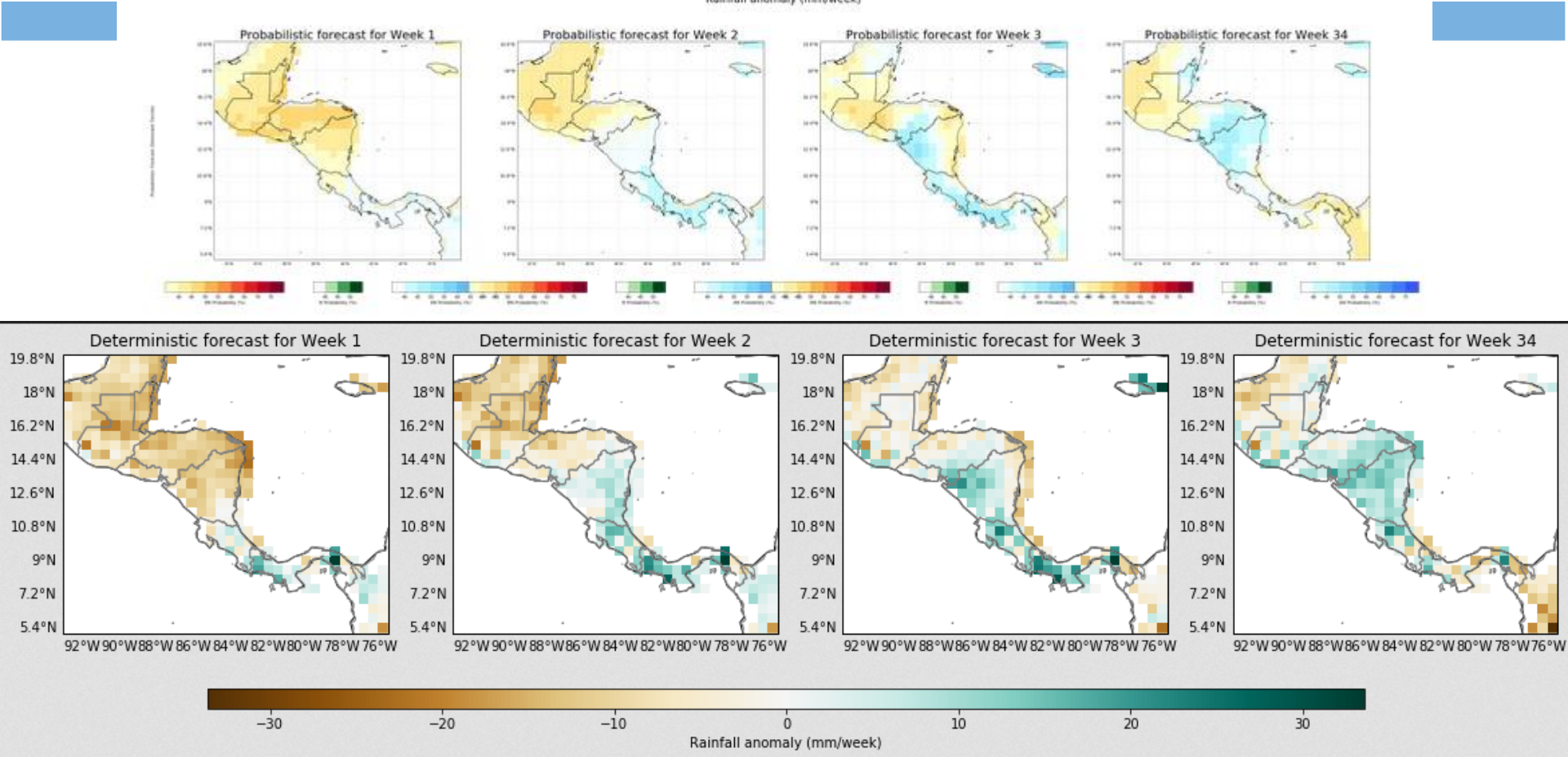




# Pronostico probabilístico CPT-Subestacional del IMN

Instituto Meteorológico Nacional
Fundado en 1888

COSTA RICA



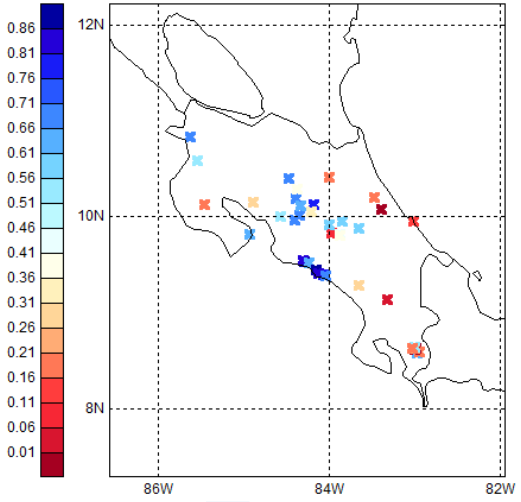

# Pronostico probabilístico CPT-Subestacional del IMN

Instituto Meteorológico Nacional
Fundado en 1888

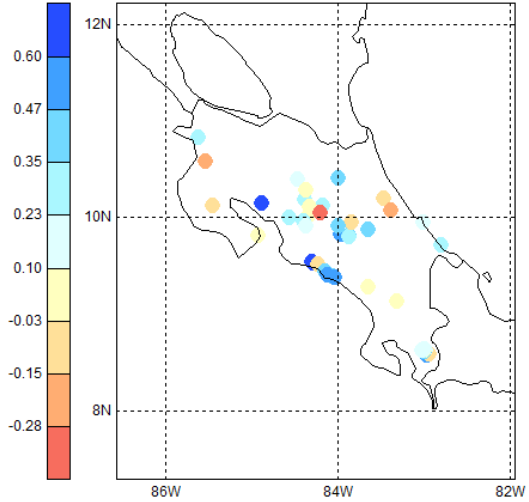
COSTA RICA

# Pronostico determinístico de días con lluvia CPT del IMN

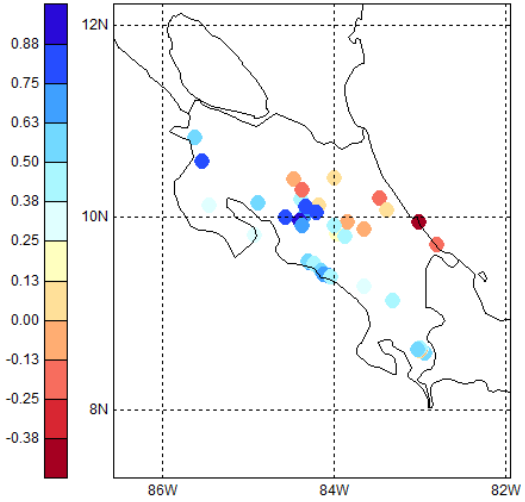
mayo




junio




julio



# Inicio época lluviosa 2022
# Regiones Climáticas

| Región Climática | Normal (1991-2020) | 2022 |
|---|---|---|
| Zona Norte Occidentral (GLU) | 12 de mayo | Normal |
| Pacífico Central | 4-9 may | Normal |
| Pacífico Sur | 25 de abril | Normal |
| Pacífico Norte | 10 - 15 de mayo | Normal |
| PENINSULA NICOYA | 13-may | Normal |
| VALLE CENTRAL | 30 de abril – 8 de mayo | 14-25 de abril |

Veranillo y Canícula en fechas normales, en el Pacífico Norte y Valle Central, del 23-26 junio y del 15 julio al 15 de agosto, respectivamente

# Inicio época lluviosa
# Regiones Climáticas

| Región Climática | Época lluviosa | |
|---|---|---|
| | Normal (1991-2020) | Normal |
| Zona Norte Occidental (GLU) | 12 de mayo | 11-15 mayo |
| Pacífico Norte | 10 - 15 de mayo | 21-25 mayo |
| Península de Nicoya | 13 de mayo | 16-20 mayo |
| Pacífico Central | 4-9 de mayo | 1-5 mayo |
| Pacífico Sur | 25 de abril | 1-5 abril |
| Valle Central | 30 de abril – 8 de mayo | 11-15 mayo |

# Muchas gracias

Los insumos de esta presentación fueron elaborados por:

Karina Hernández (khernandez@imn.ac.cr)
Rosangelica Montero (rmontero@imn.ac.cr)
Nury Sanabria (nsanabria@imn.ac.cr)
Diego Naranjo (jnaranjo@imn.ac.cr)
Daniel Poleo (dpoleo@imn.ac.cr)

**Instituto Meteorológico Nacional**
**Costa Rica**