



# 3ª Sala de Crise da Região Norte

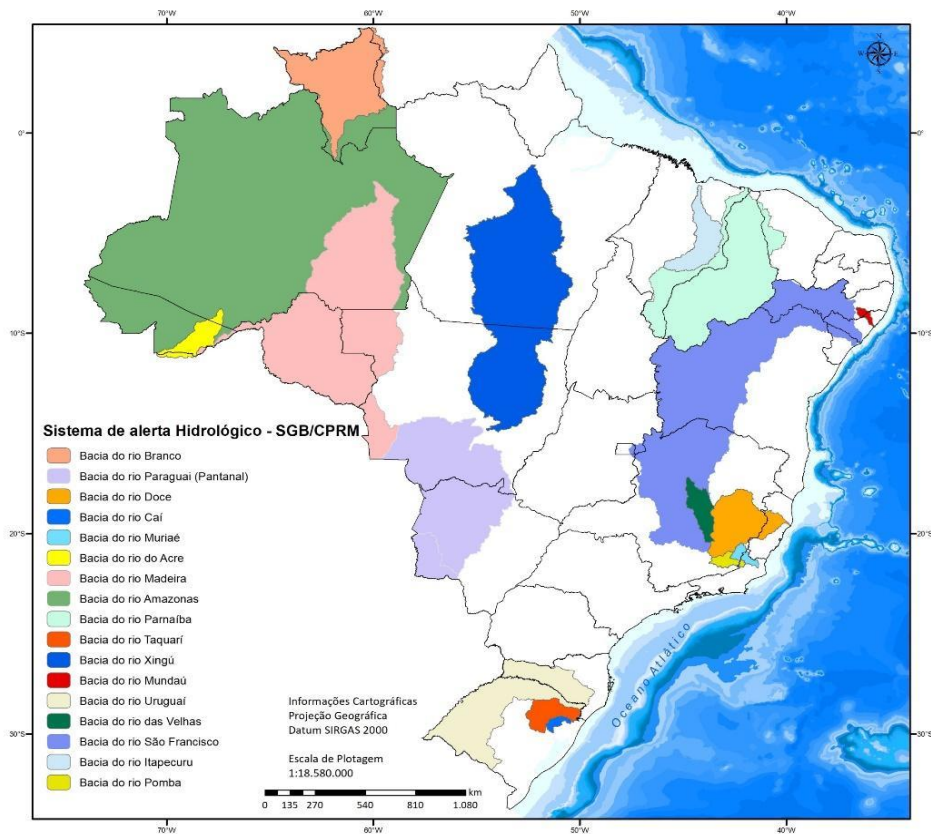
**Luna Gripp Simões Alves**

*Sistema de Alerta Hidrológico*

*Serviço Geológico do Brasil - CPRM*



# SISTEMA DE ALERTA HIDROLÓGICO



+ DE 7 MILHÕES DE PESSOAS  
BENEFICIADAS








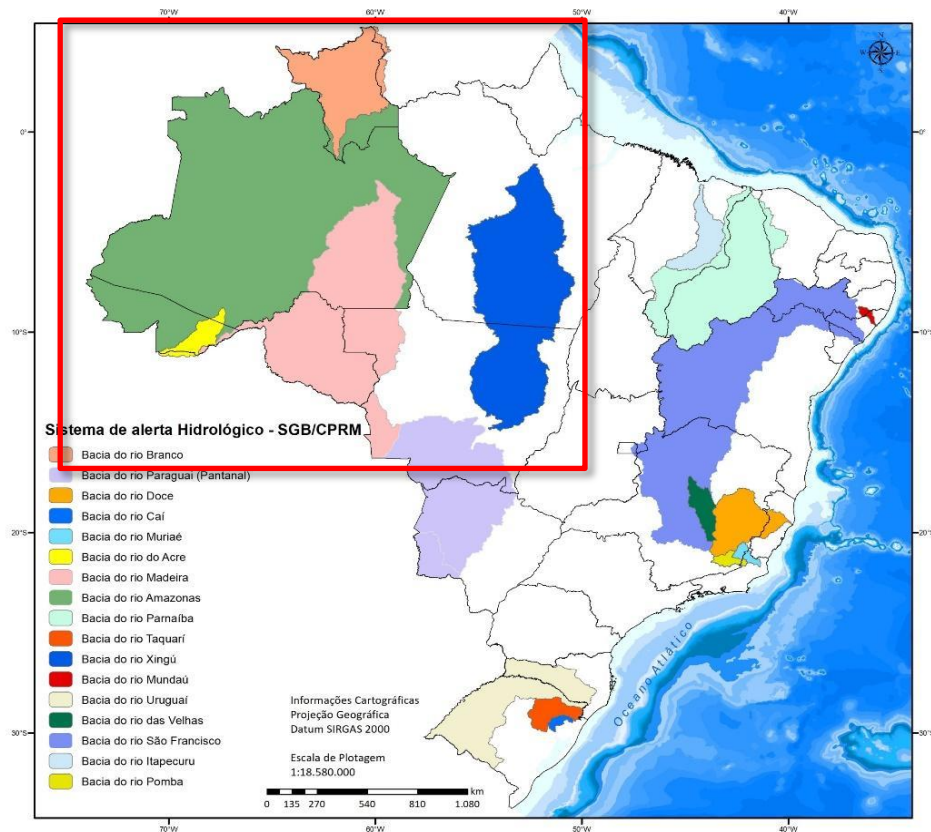
[www.sgb.gov.br/sace](http://www.sgb.gov.br/sace)



# SISTEMA DE ALERTA HIDROLÓGICO

## REGIÃO NORTE

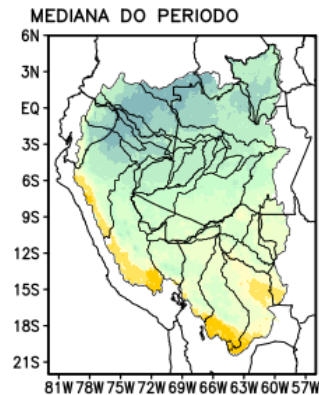
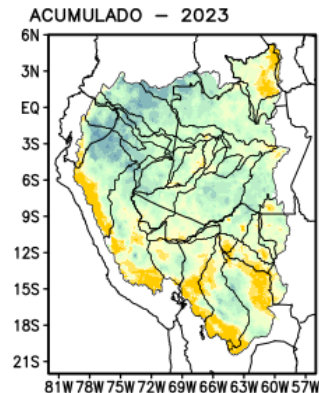
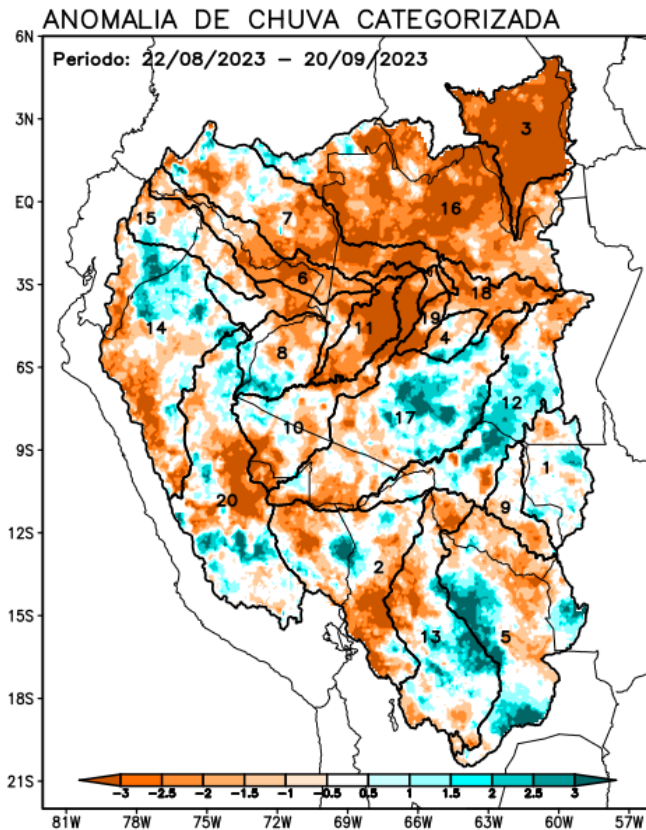
-  SAH AMAZONAS
-  SAH BRANCO
-  SAH MADEIRA
-  SAH ACRE
-  SAH XINGU



# Situação atual



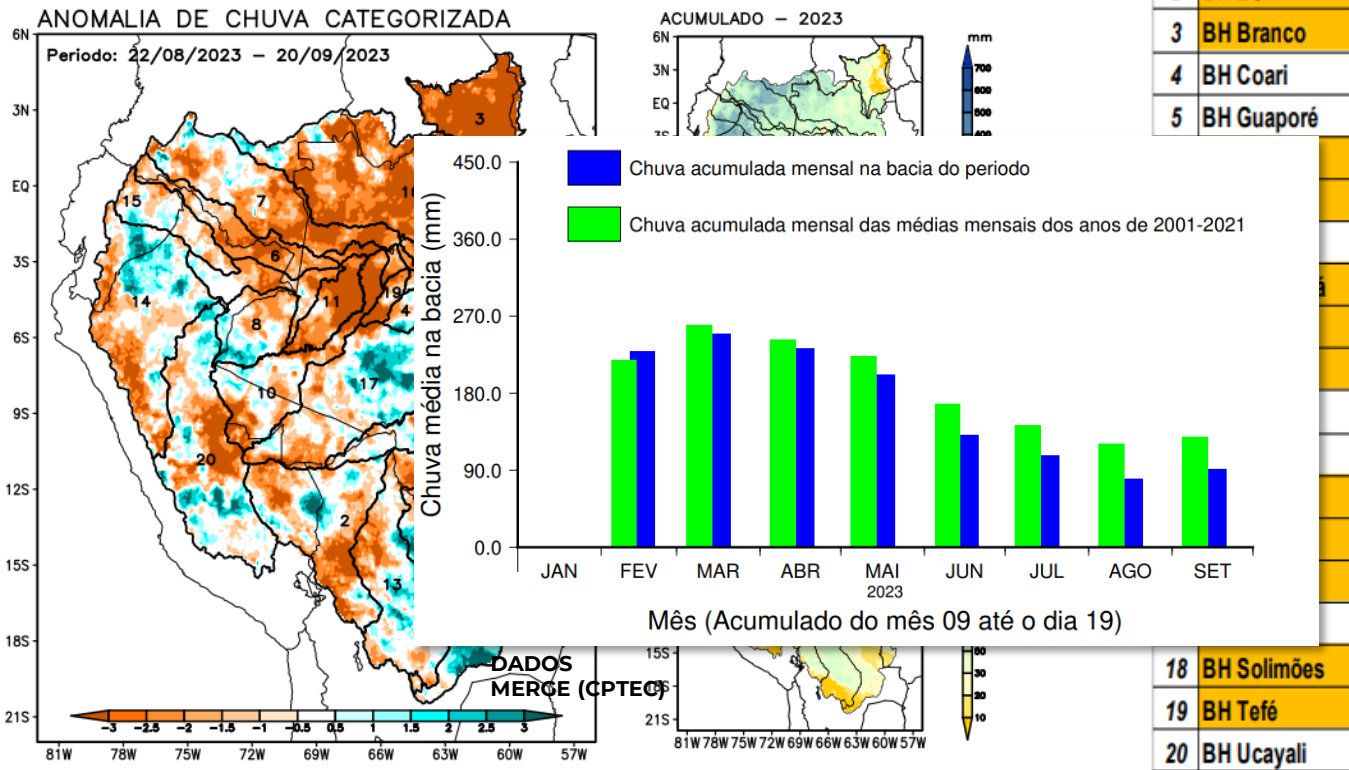
# SAH AMAZONAS



1	BH Aripuanã
2	BH Beni
3	BH Branco
4	BH Coari
5	BH Guaporé
6	BH Içá
7	BH Japurá
8	BH Javari
9	BH Ji-Paraná
10	BH Juruá
11	BH Jutai
12	BH Madeira
13	BH Mamoré
14	BH Marañon
15	BH Napo
16	BH Negro
17	BH Purus
18	BH Solimões
19	BH Tefé
20	BH Ucayali

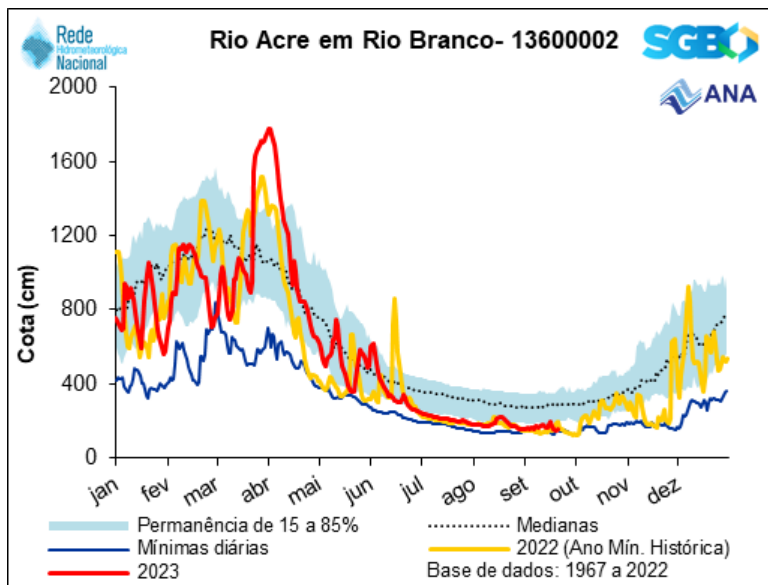
MERGE/GPM - INPE/CPTEC

# SAH AMAZONAS



MERGE/GPM - INPE/CPTEC

# SAH ACRE/AMAZONAS

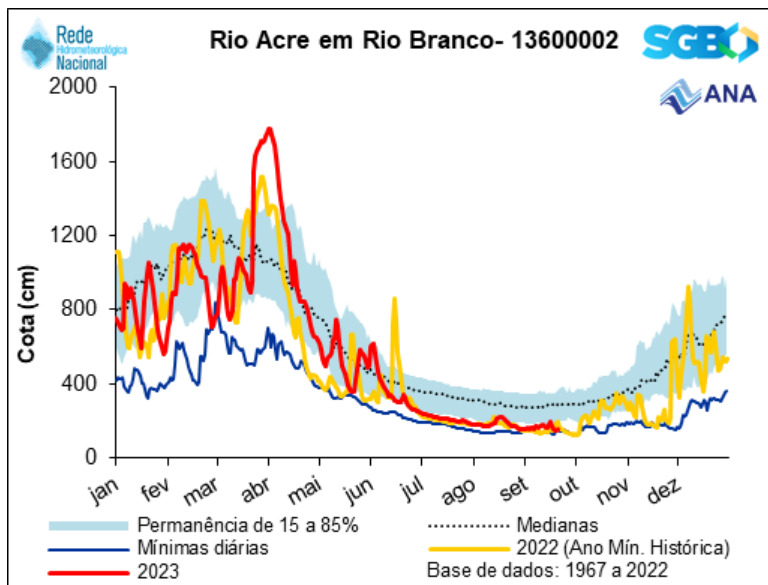


Cota mínima (02/10/2022)	124 cm
Cota atual (22/09/2023)	153cm

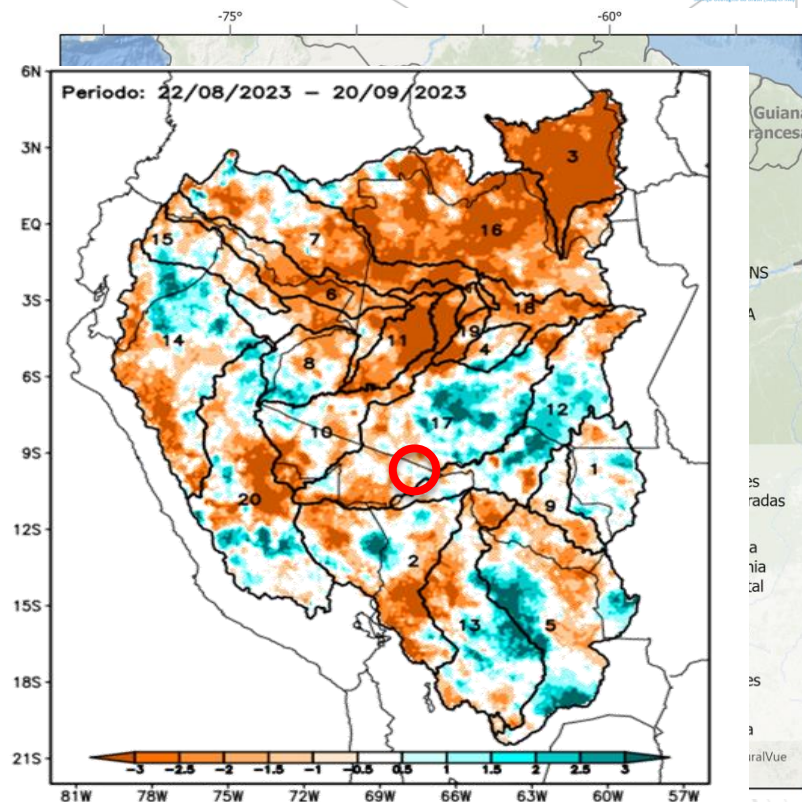




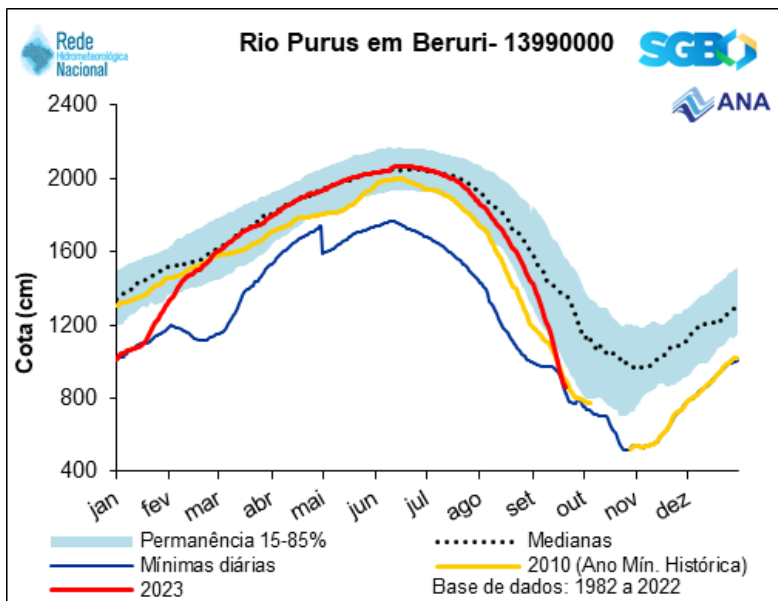
# SAH ACRE/AMAZONAS



Cota mínima (2022)	124 cm
Cota atual (22/09/2023)	153cm



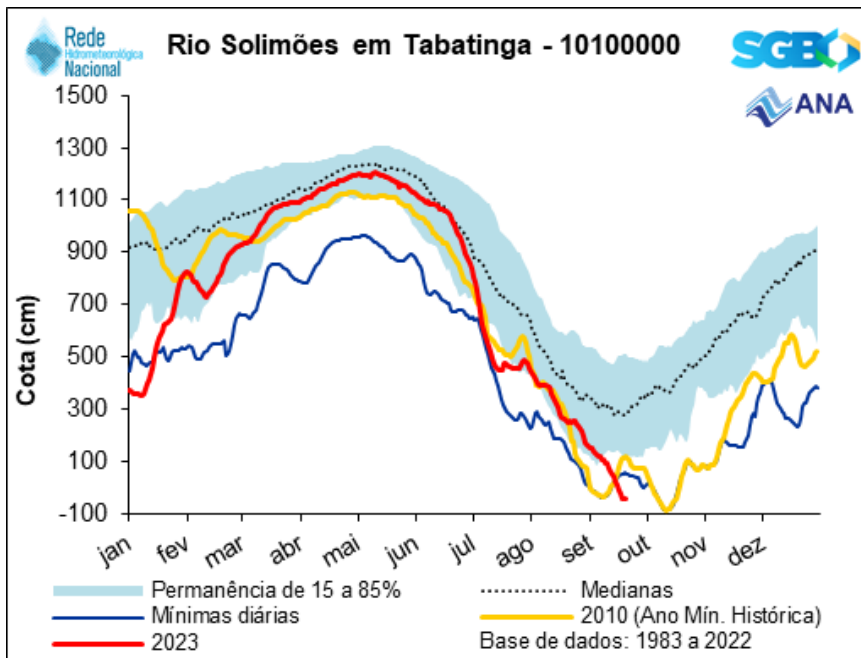
# SAH AMAZONAS



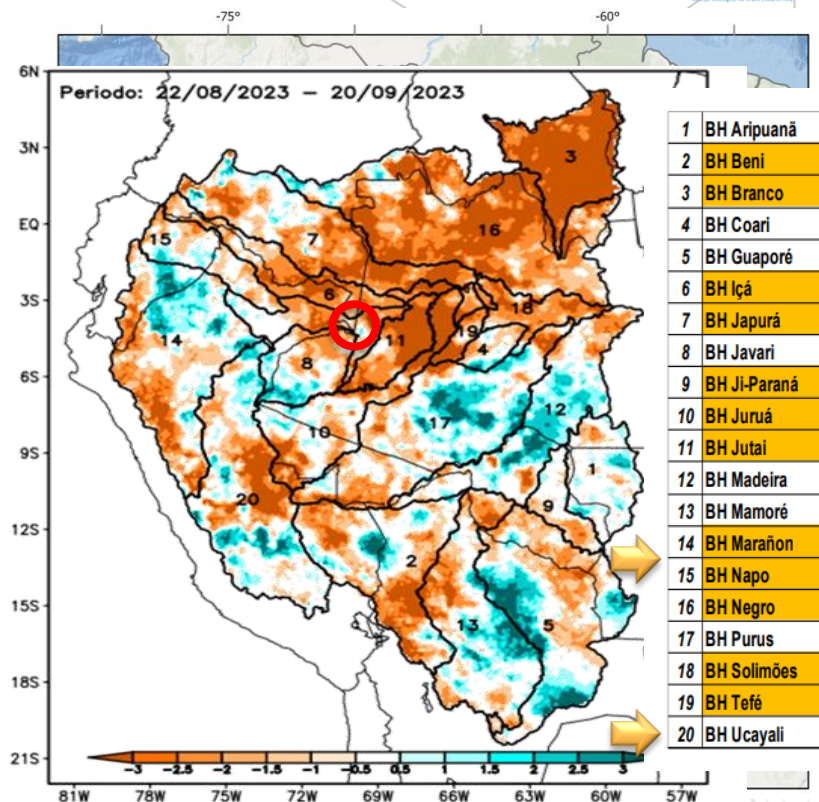
Cota mínima (2010)	518 cm
Cota atual (22/09/2023)	826 cm



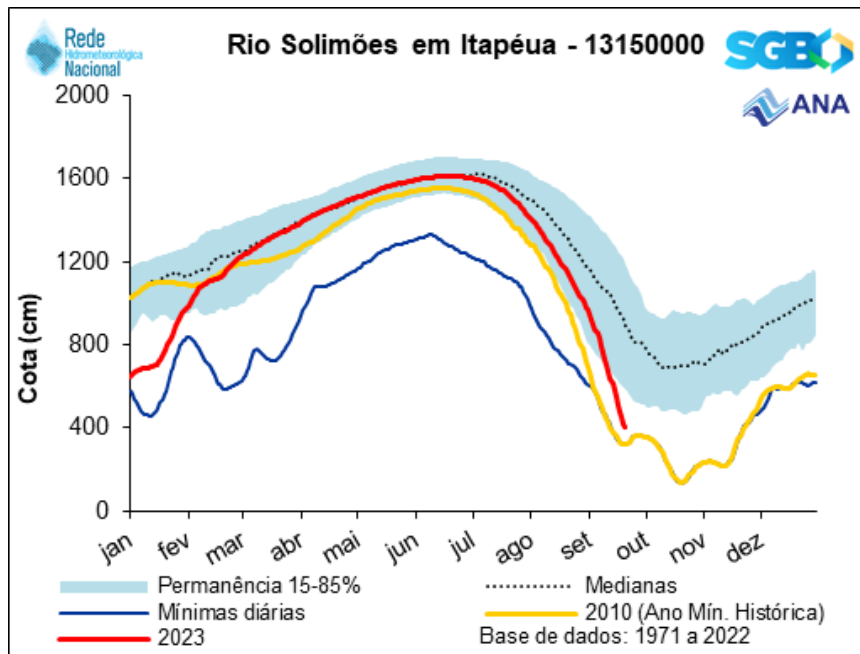
# SAH AMAZONAS



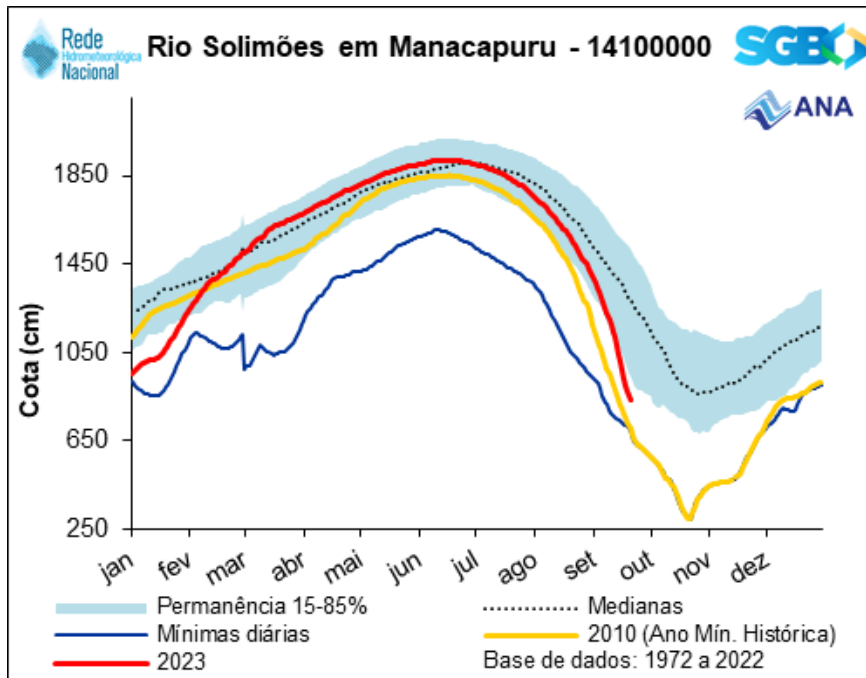
Cota mínima (2010)	- 86 cm
Cota atual (21/09/2023)	- 41 cm



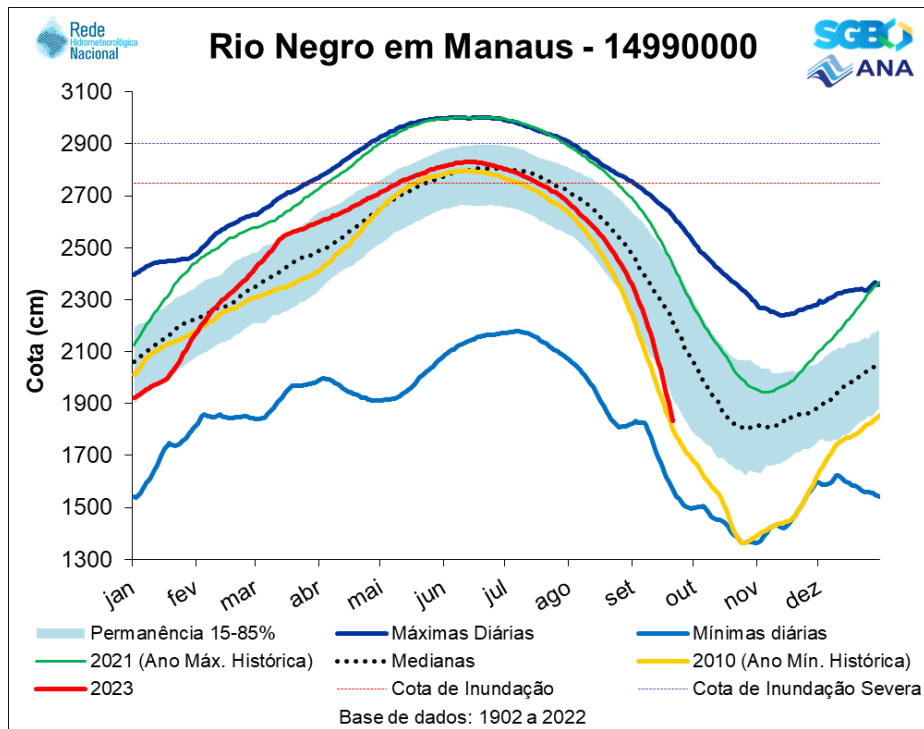
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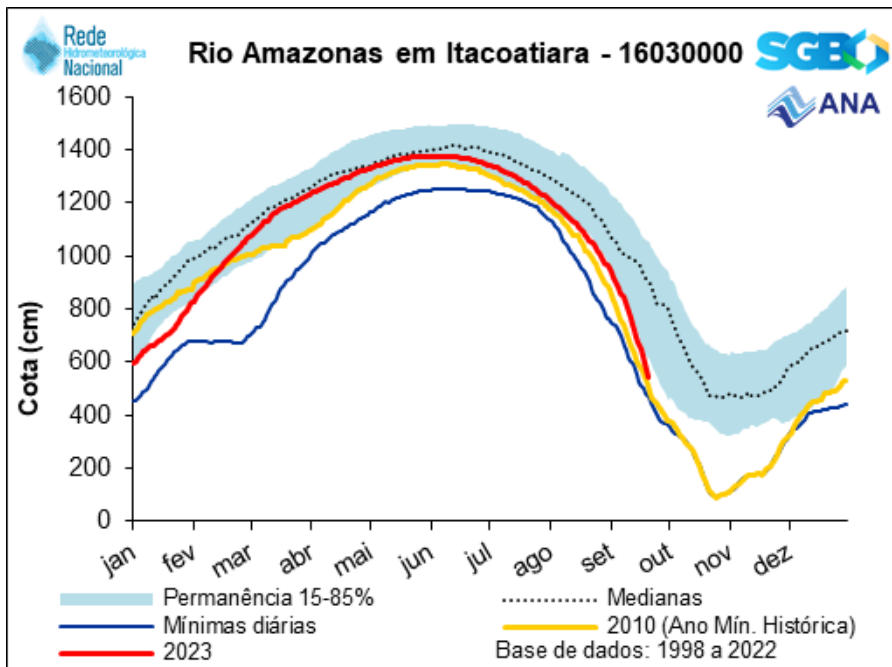
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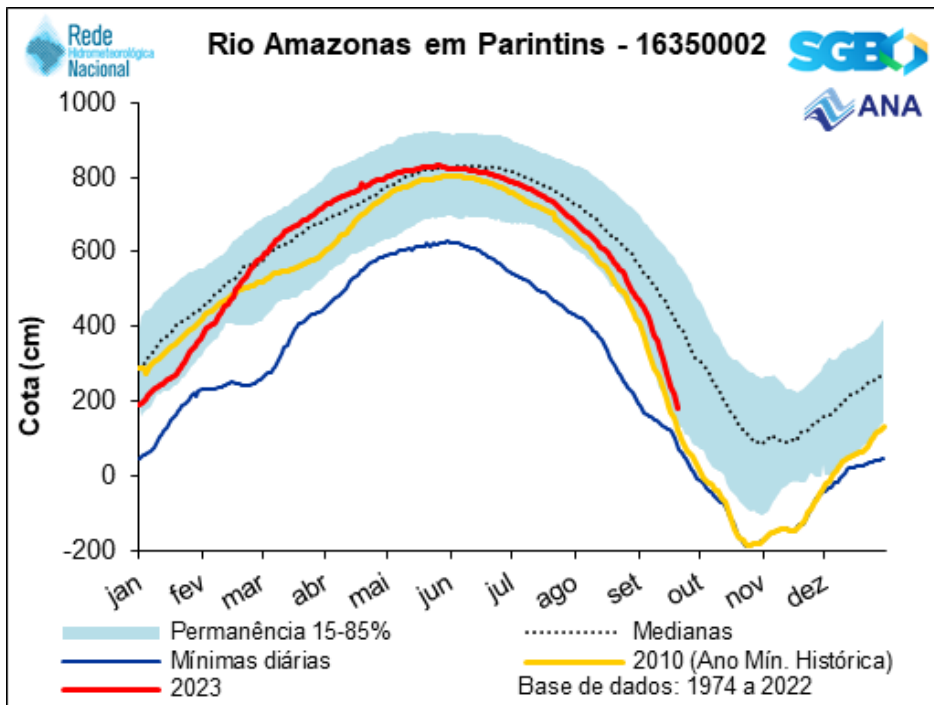
# SAH AMAZONAS



# SAH AMAZONAS

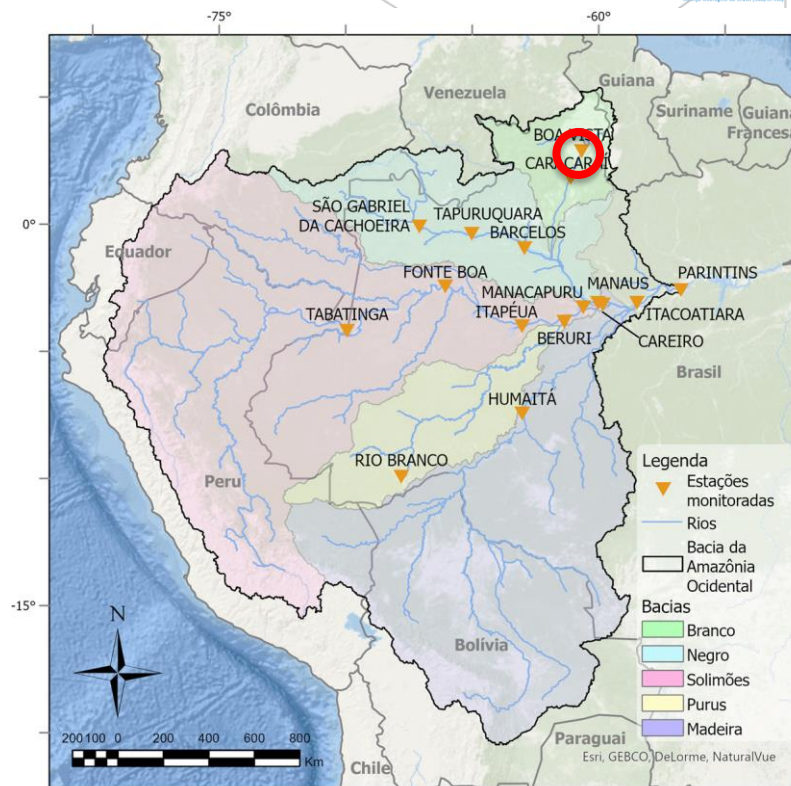
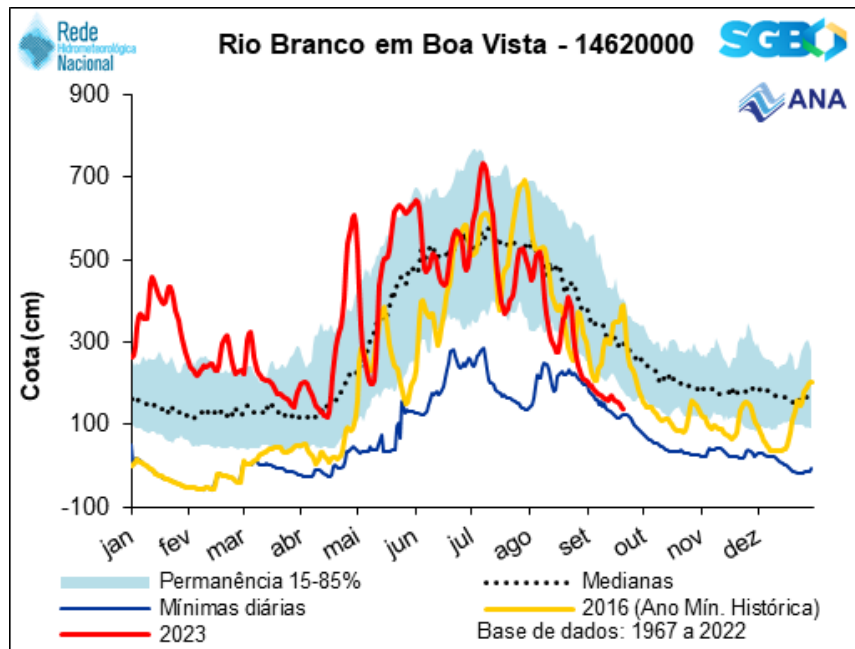


# SAH AMAZONAS

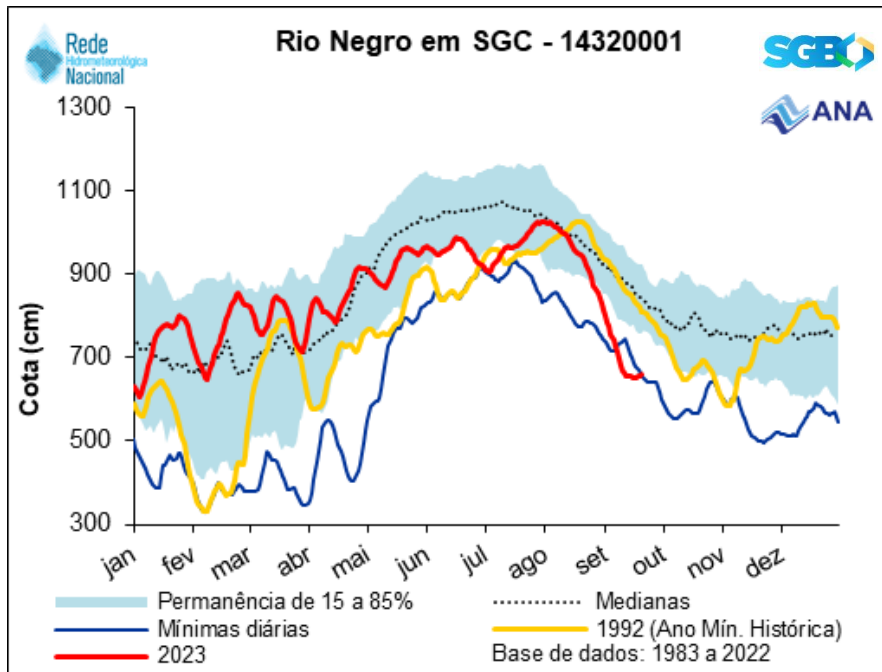




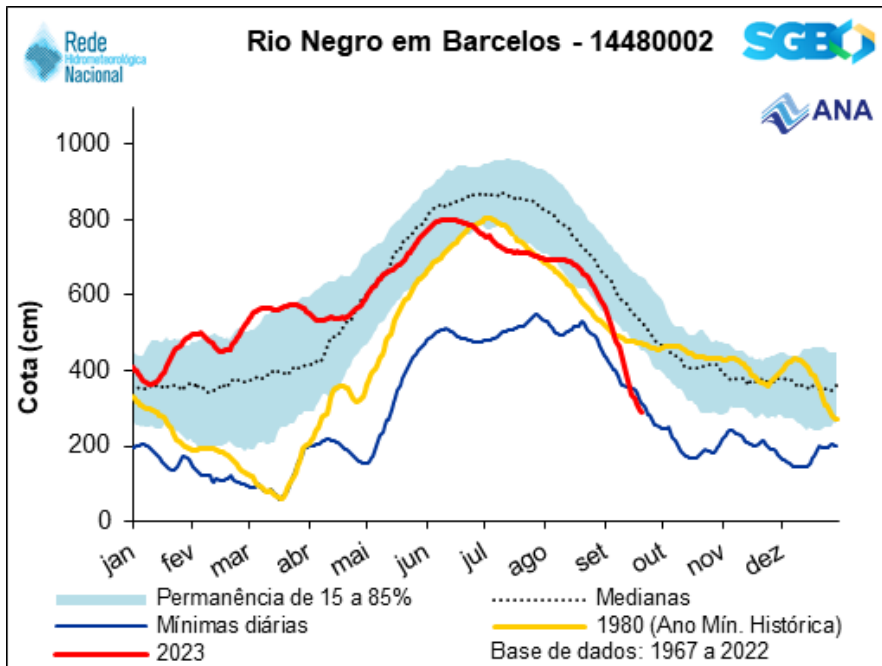
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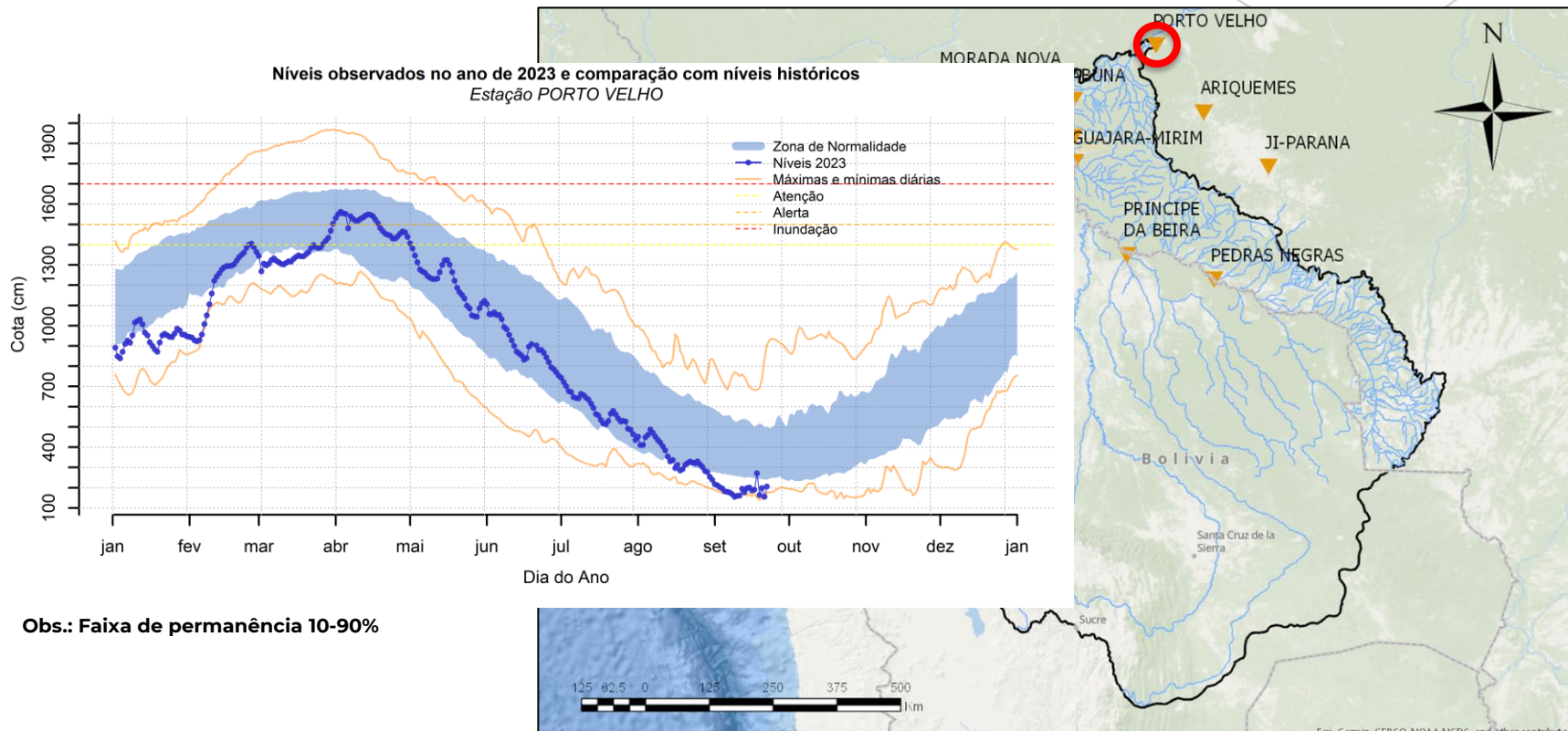
# SAH AMAZONAS



# SAH AMAZONAS



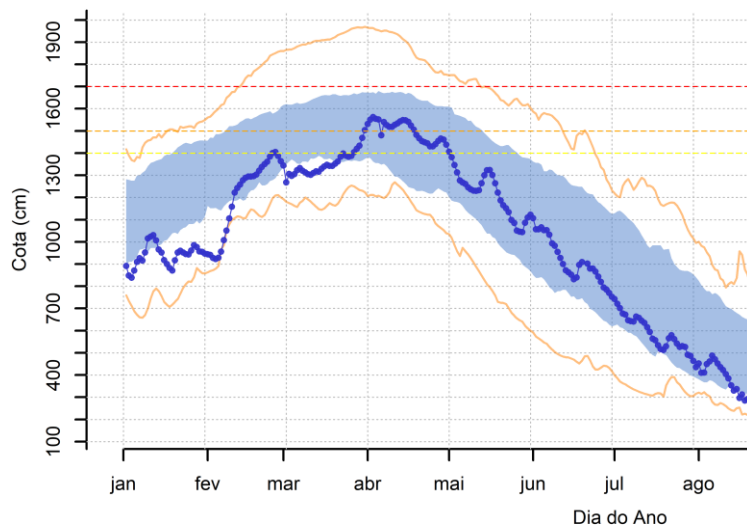
# SAH MADEIRA



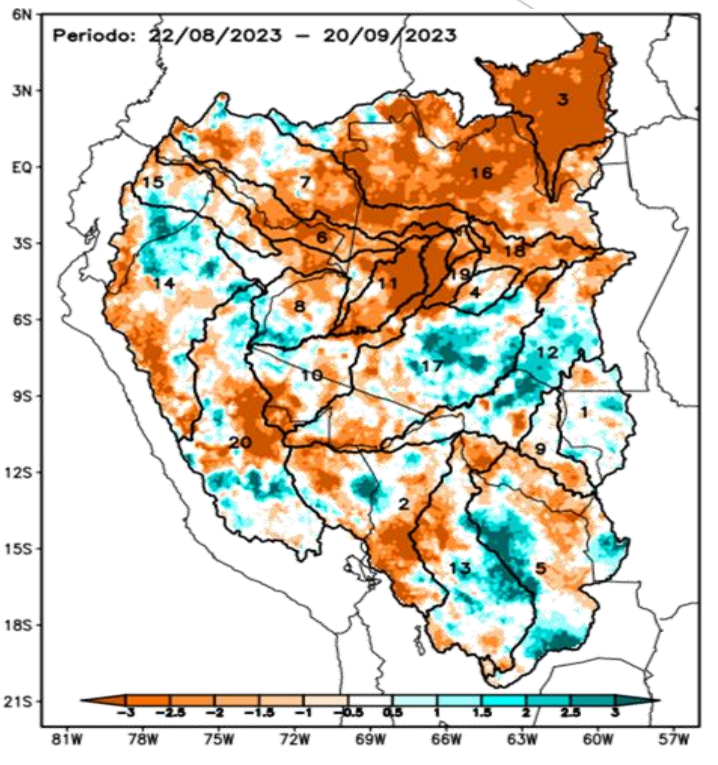
Cota mínima (18/09/2022)	138 cm
Cota atual (22/09/2023)	167 cm

# SAH MADEIRA

Níveis observados no ano de 2023 e comparação  
Estação PORTO VELHO



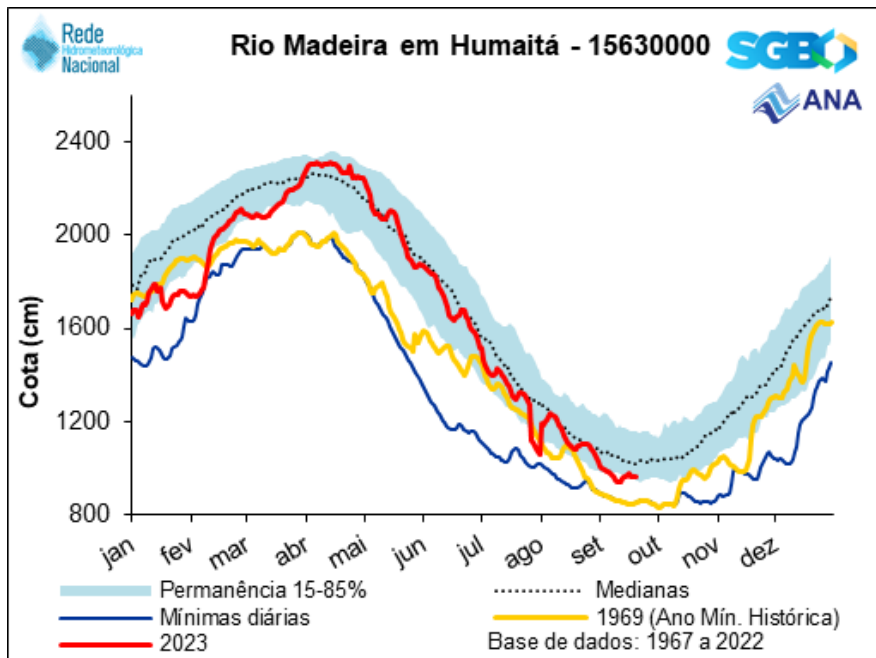
Obs.: Faixa de permanência 10-90%



- 1 BH Aripuanã
- 2 BH Beni
- 3 BH Branco
- 4 BH Coari
- 5 BH Guaporé
- 6 BH Içá
- 7 BH Japurá
- 8 BH Javari
- 9 BH Ji-Paraná
- 10 BH Jurua
- 11 BH Jutai
- 12 BH Madeira
- 13 BH Mamoré
- 14 BH Marañon
- 15 BH Napo
- 16 BH Negro
- 17 BH Purus
- 18 BH Solimões
- 19 BH Tefé
- 20 BH Ucayali

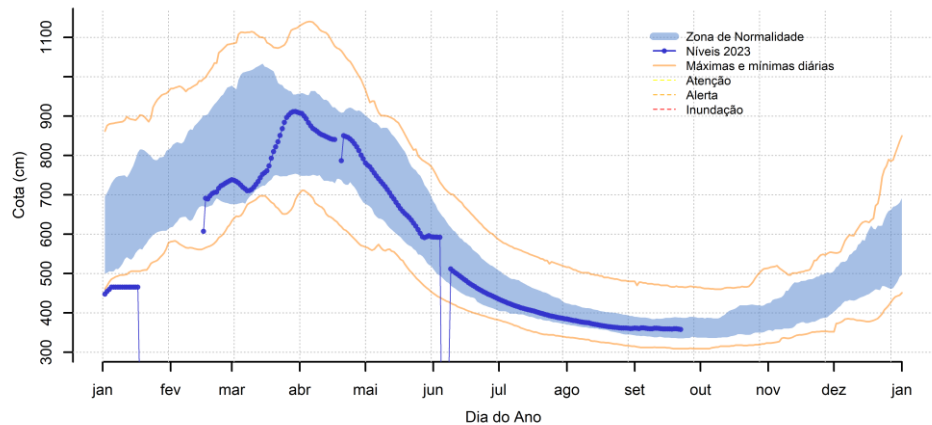
Cota mínima (18/09/2022)	138 cm
Cota atual (22/09/2023)	167 cm

# SAH AMAZONAS

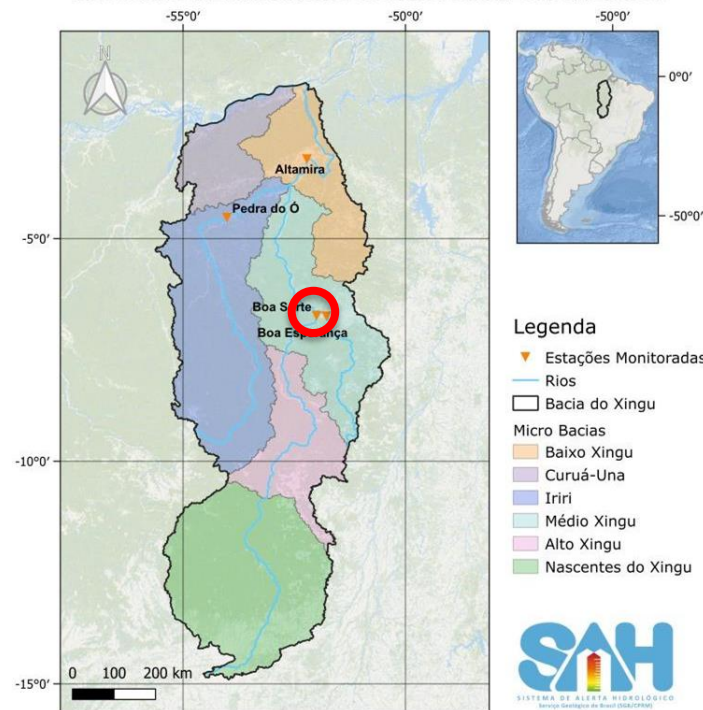


# SAH XINGU

Níveis observados no ano de 2023 e comparação com níveis históricos  
Estação BOA SORTE

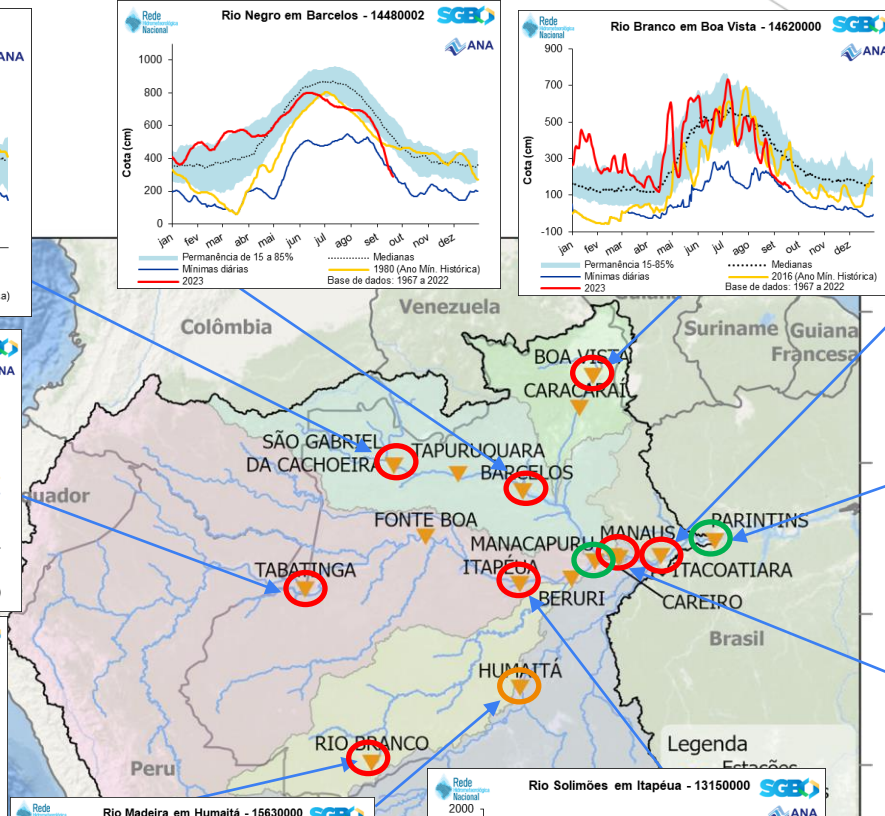
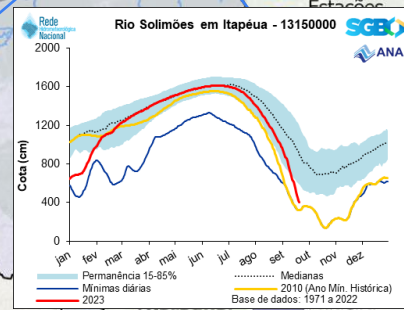
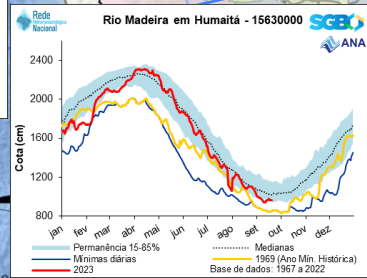
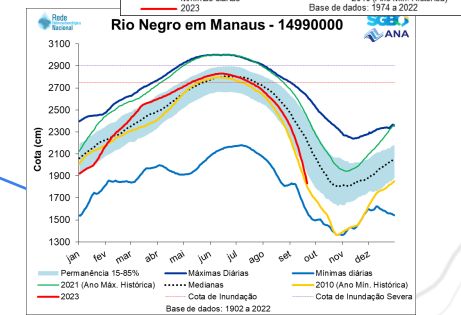
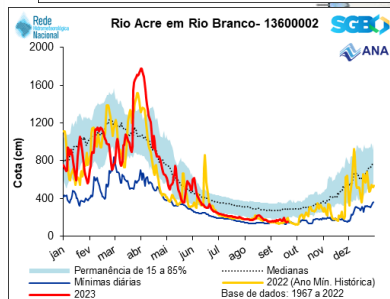
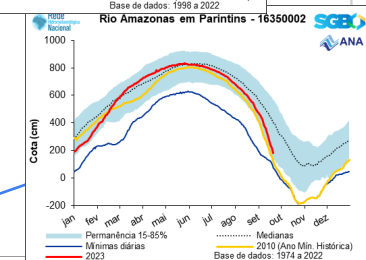
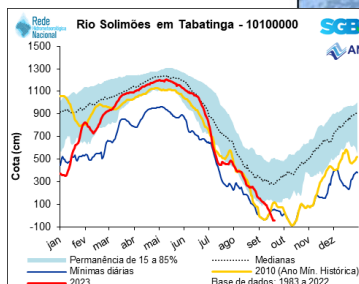
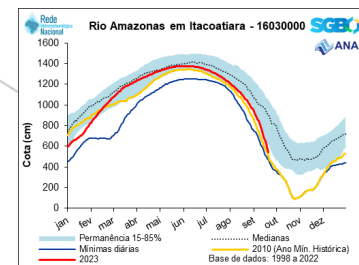
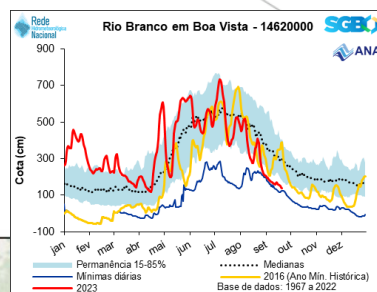
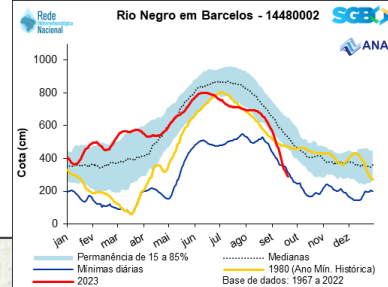
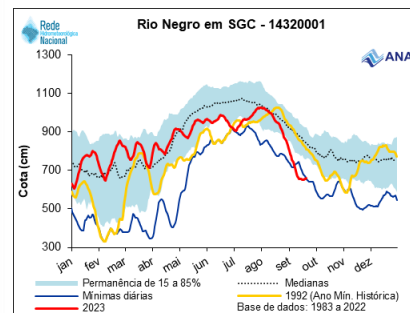


## SISTEMA DE ALERTA HIDROLÓGICO DA BACIA DO RIO XINGU



### Legenda

- Estações Monitoradas
- Rios
- Bacia do Xingu
- Micro Bacias
  - Baixo Xingu
  - Curuá-Una
  - Iriri
  - Médio Xingu
  - Alto Xingu
  - Nascentes do Xingu



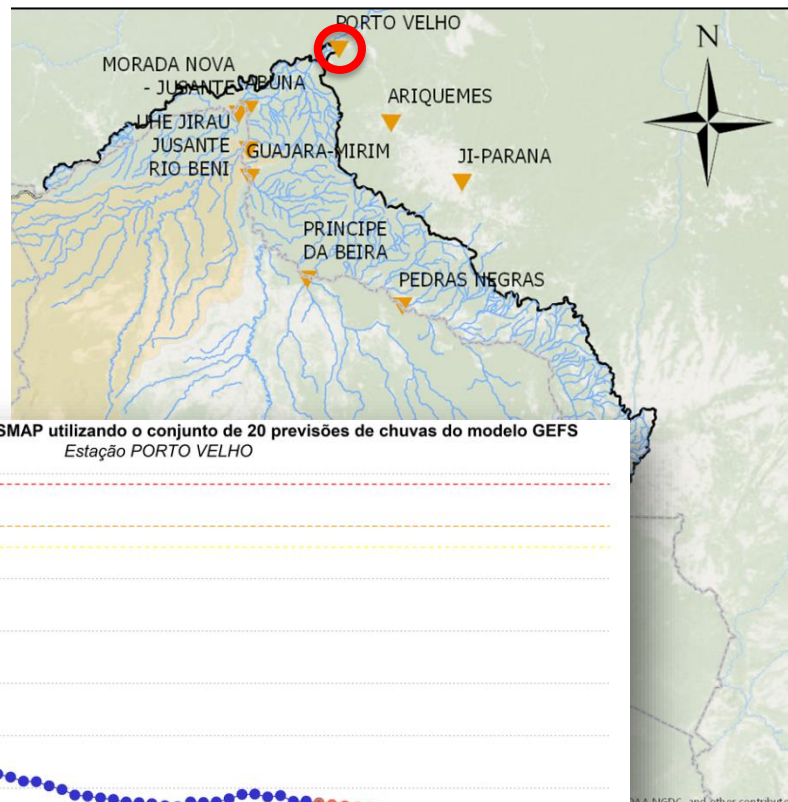
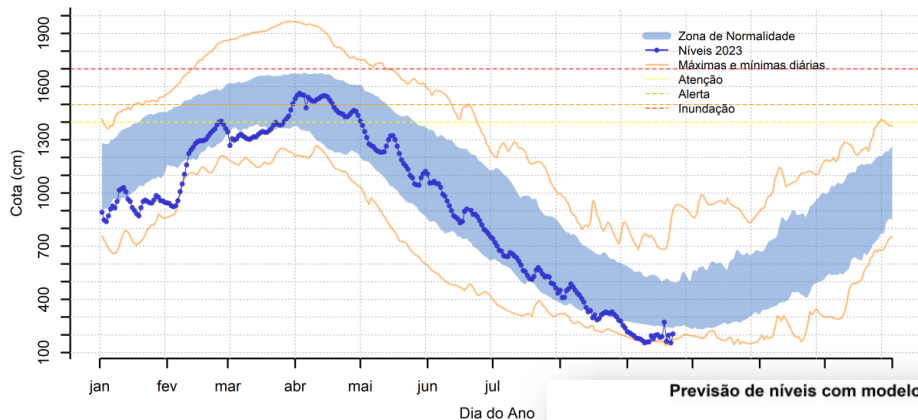
- Dentro da normalidade
- Próximo ao limite inferior da normalidade
- Abaixo da normalidade



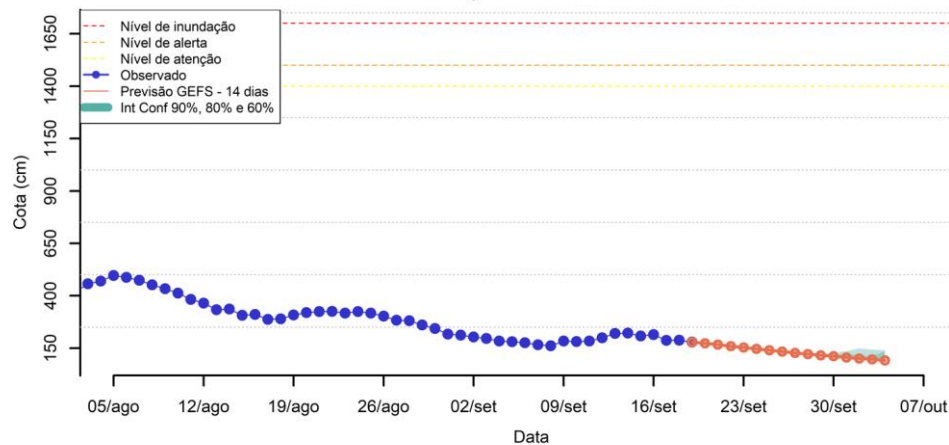
# Prognósticos e considerações

# PREVISÃO PORTO VELHO

Níveis observados no ano de 2023 e comparação com níveis históricos  
Estação PORTO VELHO



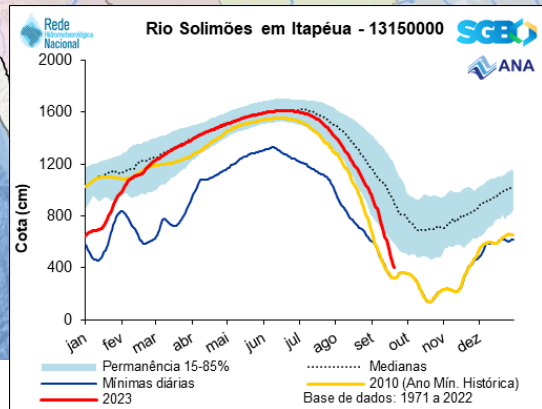
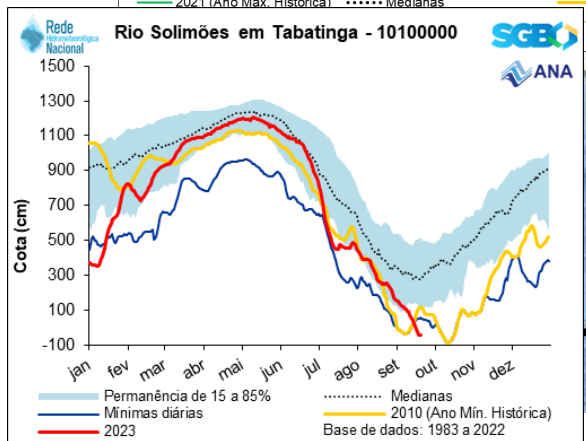
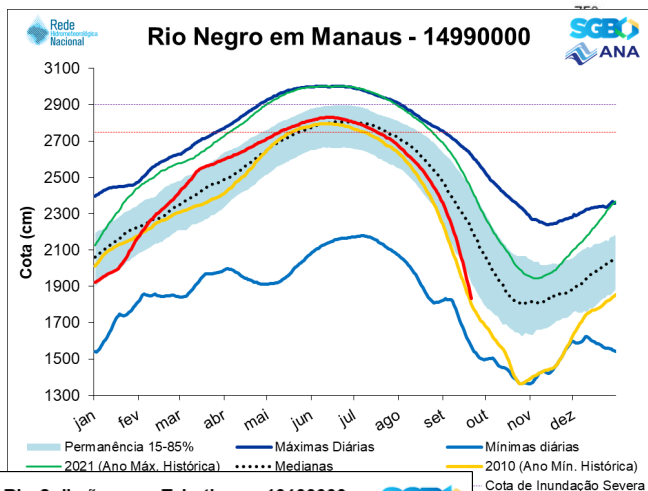
Previsão de níveis com modelo SMAP utilizando o conjunto de 20 previsões de chuvas do modelo GEFS  
Estação PORTO VELHO



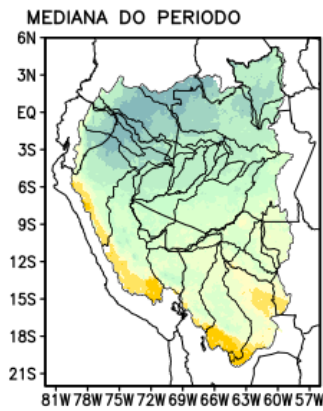
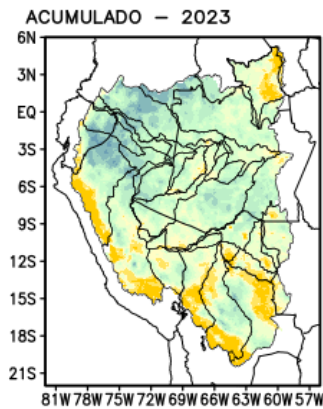
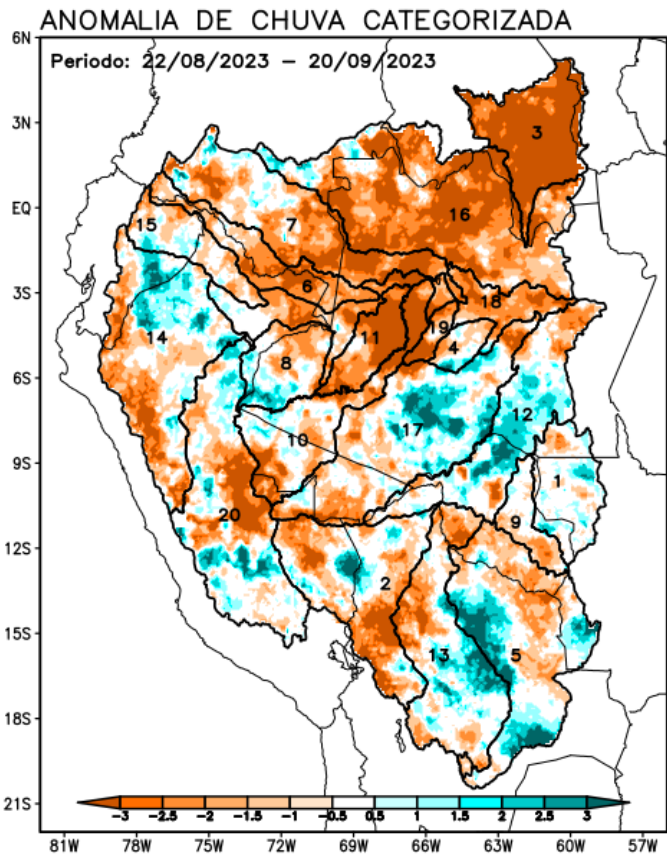
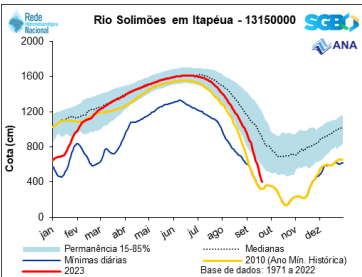
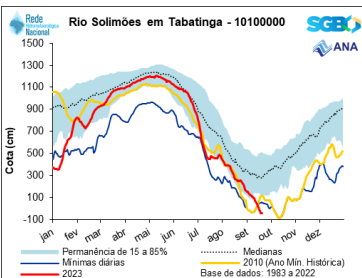
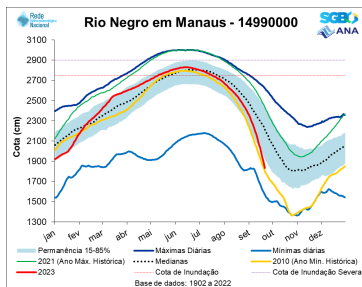
# PREVISÃO MANAUS



# PREVISÃO MANAUS

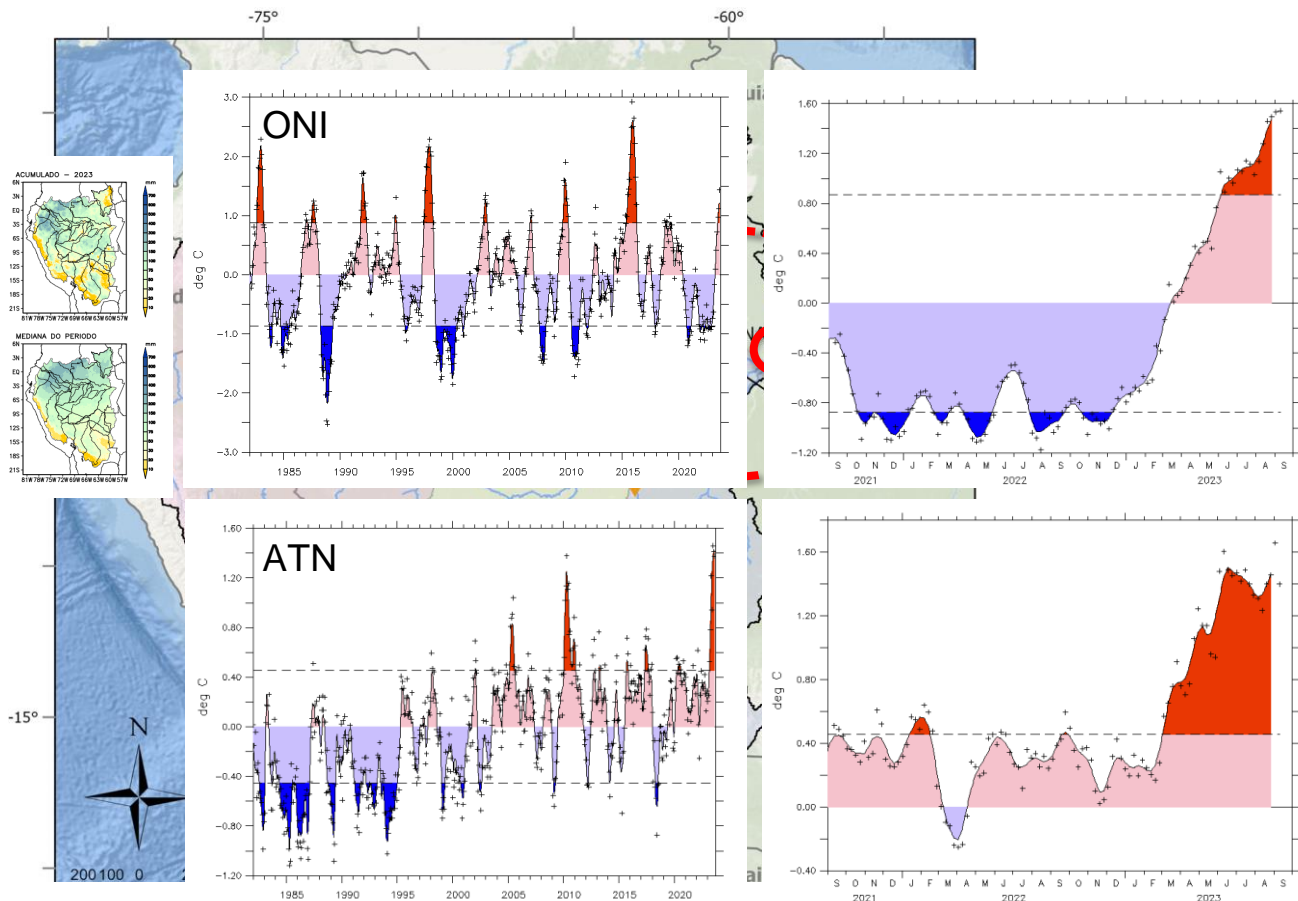
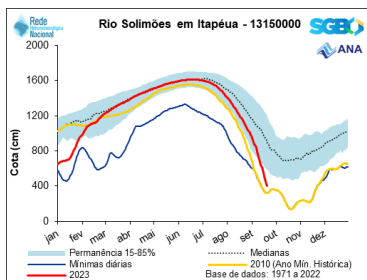
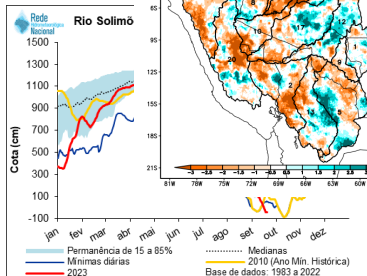
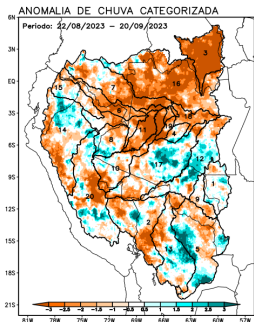
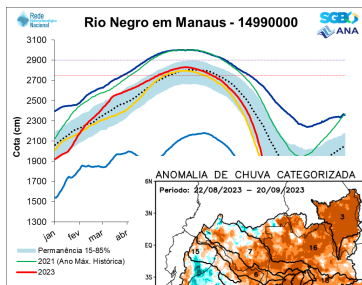


# PREVISÃO MANAUS



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# PREVISÃO MANAUS

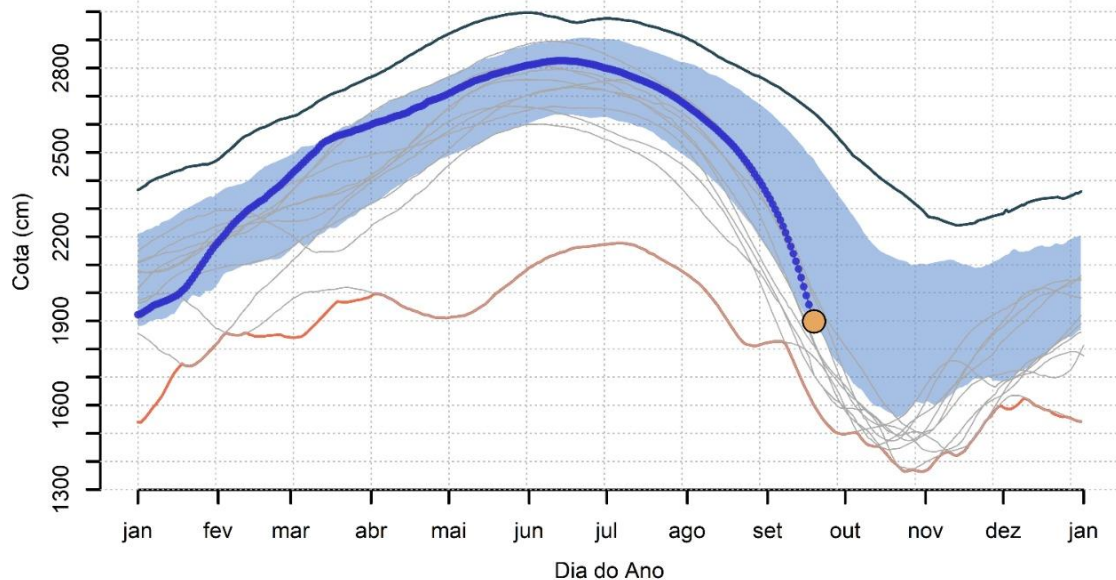


# 10 Maiores secas

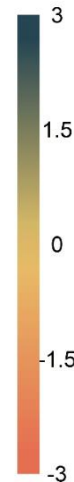
(+ de 100 anos de dados)

El Niño  
Seca Hidrológica

Níveis observados no ano de 2023 e comparação com níveis históricos  
Estação Manaus



SPI



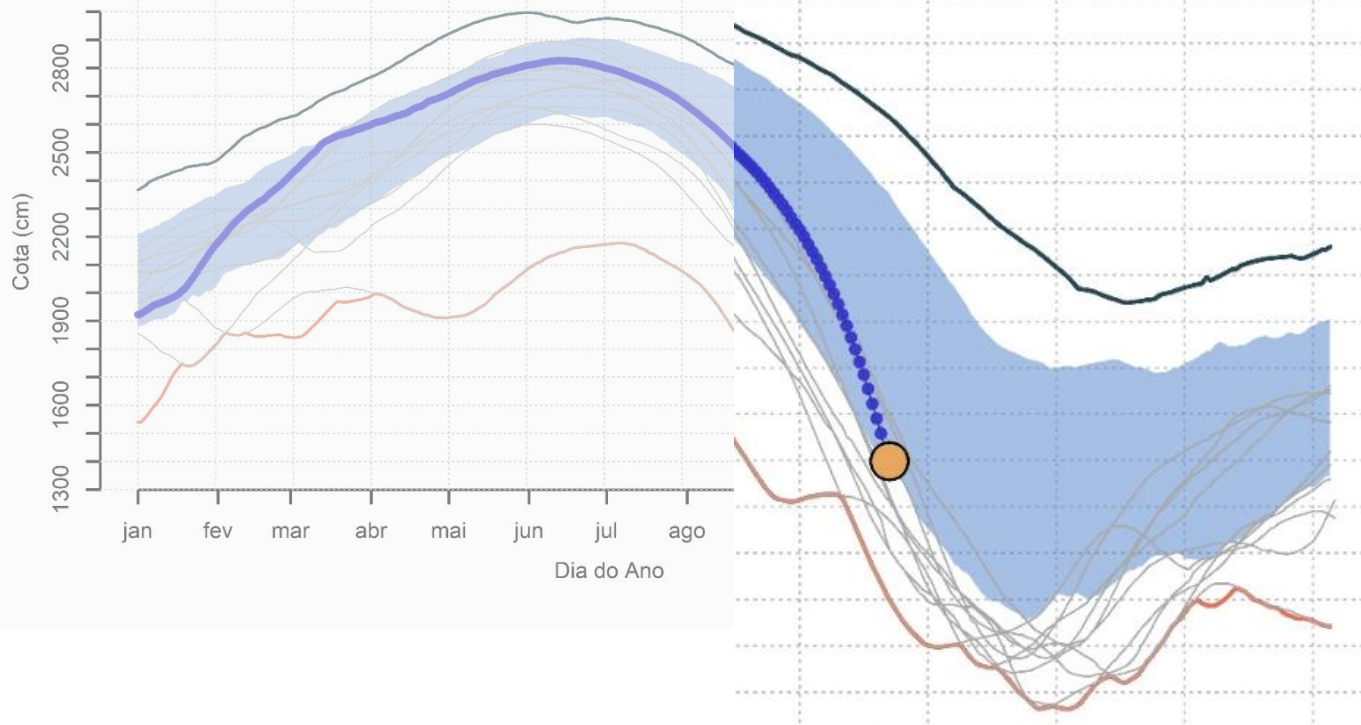
Cota mínima (cm)	Ano	Ordem
1363	2010	1
1364	1963	2
1420	1906	3
1434	1997	4
1442	1916	5
1454	1926	6
1474	1958	7
1475	2005	8
1497	1936	9
1503	1998	10
1504	1909	11
1506	1995	12
1539	1907	13
1569	1948	14
1574	1950	15
1586	2009	16

# 10 Maiores secas

(+ de 100 anos de dados)

El Niño  
Seca Hidrológica

Níveis observados no ano de 2023 e comparação  
Estação Manaus



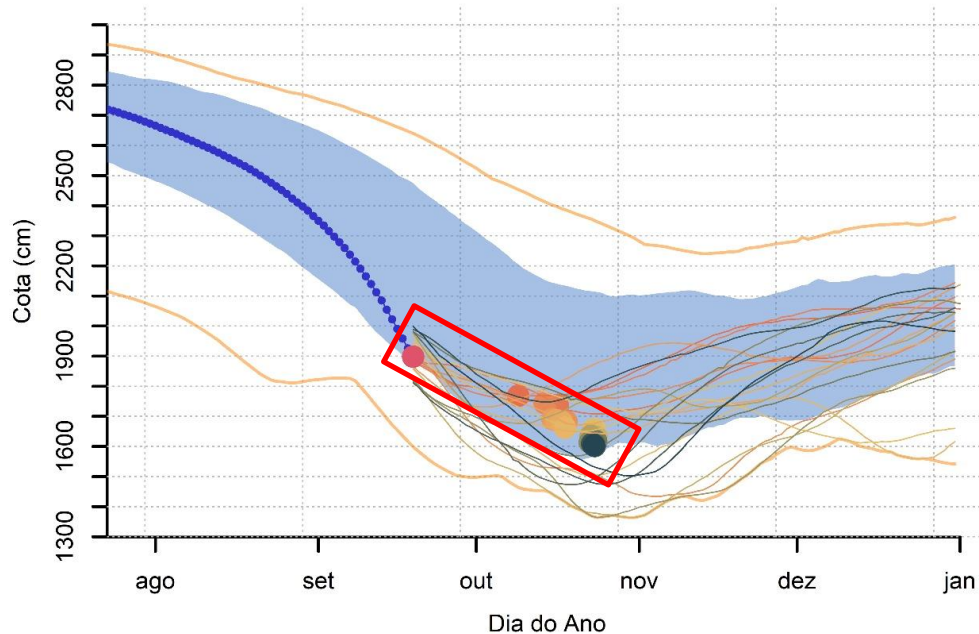
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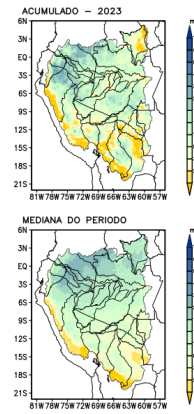
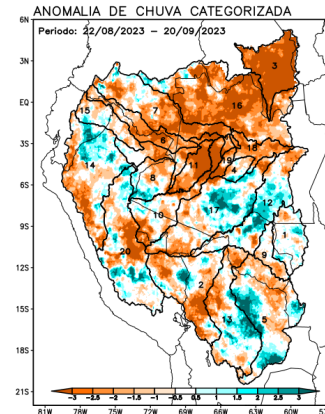
# 20 anos onde o nível estava próximo do nível atual

(+ de 100 anos de dados)

Níveis observados no ano de 2023 e comparação com níveis históricos  
*Estação Manaus*

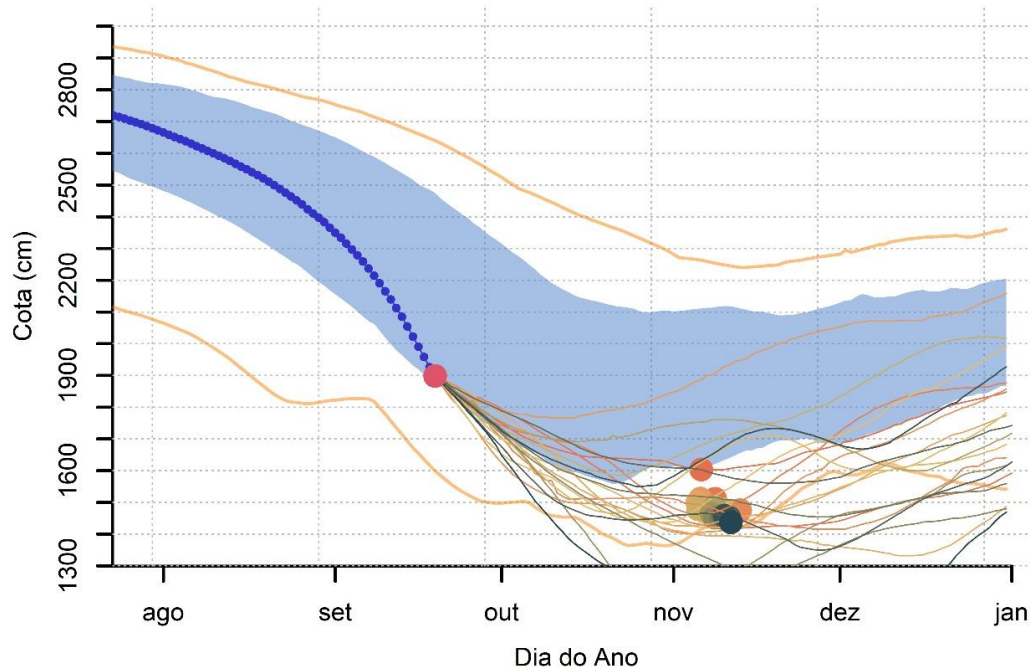


Proximidade



# Todos os anos que o El Nino estava em um patamar parecido com o de hoje (+ de 100 anos de dados)

Níveis observados no ano de 2023 e comparação com níveis históricos  
*Estação Manaus*



Proximidade  
com ENSO 3



# CONSIDERAÇÕES FINAIS

## HIDROVIAS

- Transporte de grandes cargas
- Transporte de alimentos, remédios e combustíveis para interior
- Mobilidade de pessoas entre comunidades e centros de saúde

## MEIOS DE SUBSISTÊNCIA

- Pesca
- Agricultura

## ÁGUA

- Consumo
- Higiene



**Luna Alves**

*Pesquisadora em Geociências*

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Serviço Geológico do Brasil – CPRM

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