



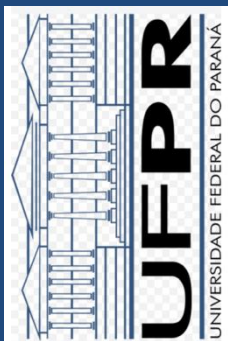
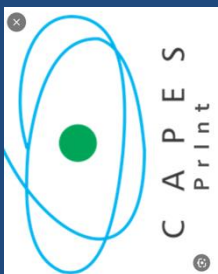
ESTADO DE SANTA CATARINA
SECRETARIA DE ESTADO DA SAÚDE
DIRETORIA DE VIGILÂNCIA EPIDEMIOLÓGICA
GERÊNCIA DE ZOOSE, ACIDENTES POR ANIMAIS PEÇONHENTOS E DOENÇAS
TRANSMITIDAS POR VETORES

III SEMINARIO ESTADUAL DE ARBOVIROSES DE SANTA CATARINA

SAÚDE PÚBLICA, URBANIZAÇÃO E DENGUE NO BRASIL E EM SANTA CATARINA



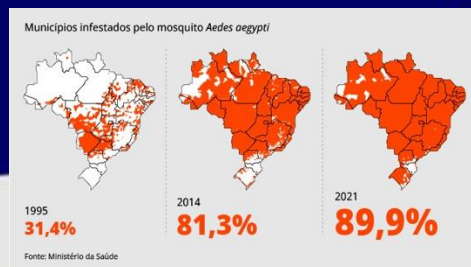
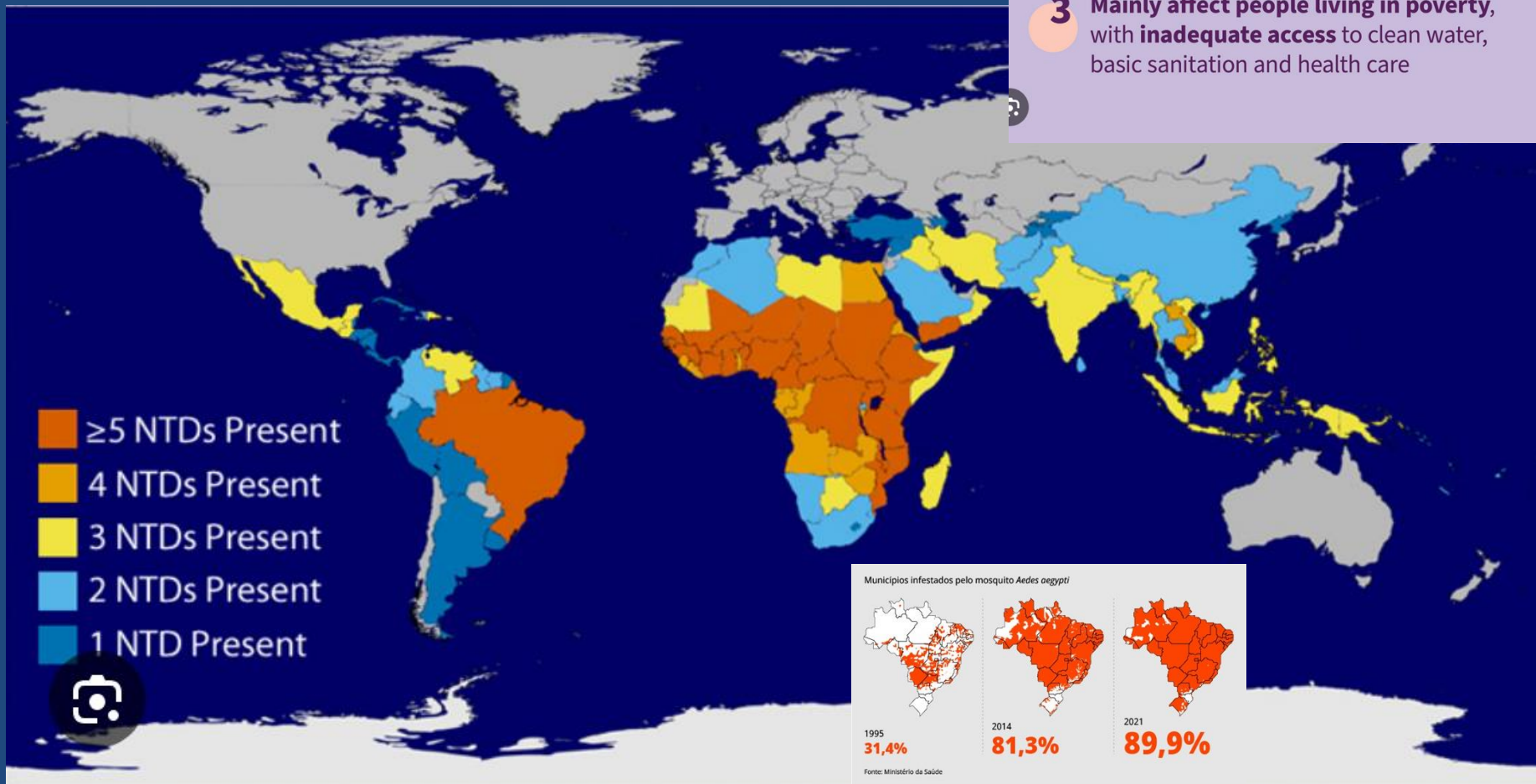
MENDONÇA, Francisco
UFPR – Professor Sênior / UFSC – Professor Visitante



NTDs – NEGLECTED TROPICAL DISEASES !

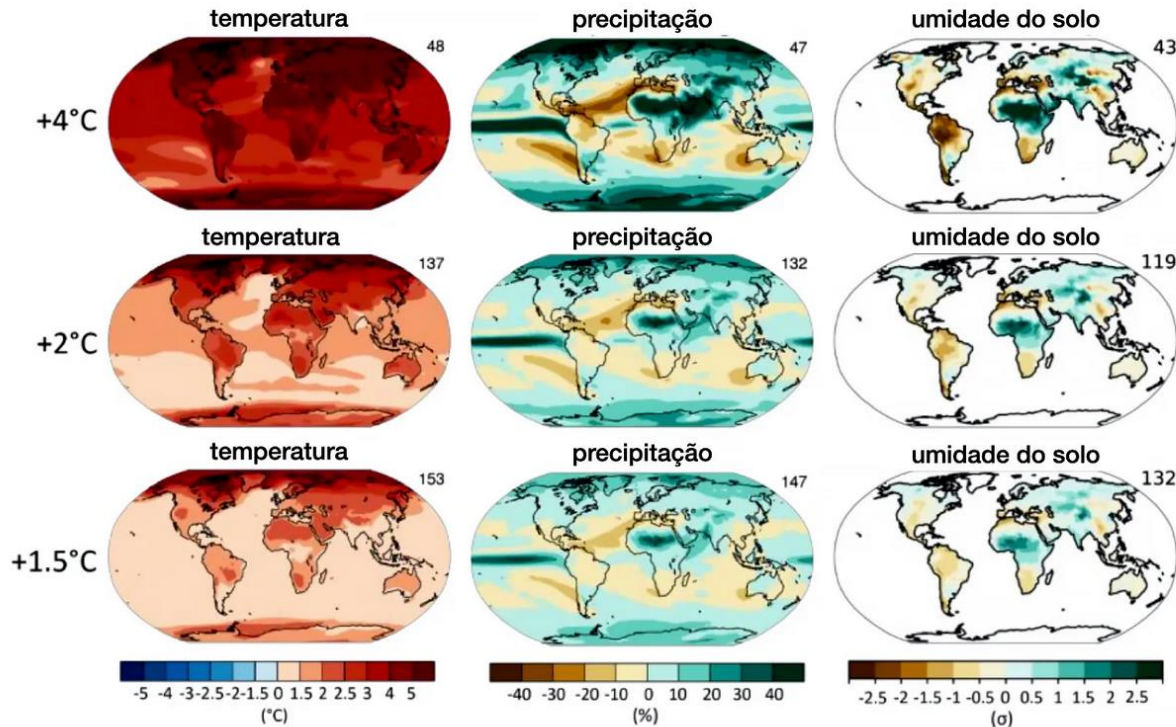
Neglected tropical diseases:

- 1 Are **common** in **tropical countries**
- 2 **Lacks public health attention** at global and national level
- 3 **Mainly affect people living in poverty**, with **inadequate access** to clean water, basic sanitation and health care



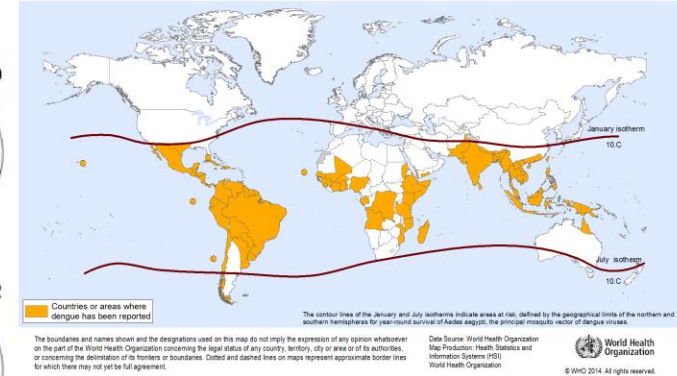
MUDANÇAS / EMERGÊNCIA CLIMÁTICA : CENÁRIOS PRESENTES E FUTUROS...e a DENGUE ?

Previsão de mudanças induzidas por diferentes níveis de aquecimento global



Fonte: IPCC AR6 WGI / Jornal da USP (adaptado da versão original em inglês)

Dengue, countries or areas at risk, 2013



IPCC / AR6
1,3°C
1,5°C Atual



Environment: Science and Policy for Sustainable Development
Volume 67, 2025 - Issue 1

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Journal homepage

118,548

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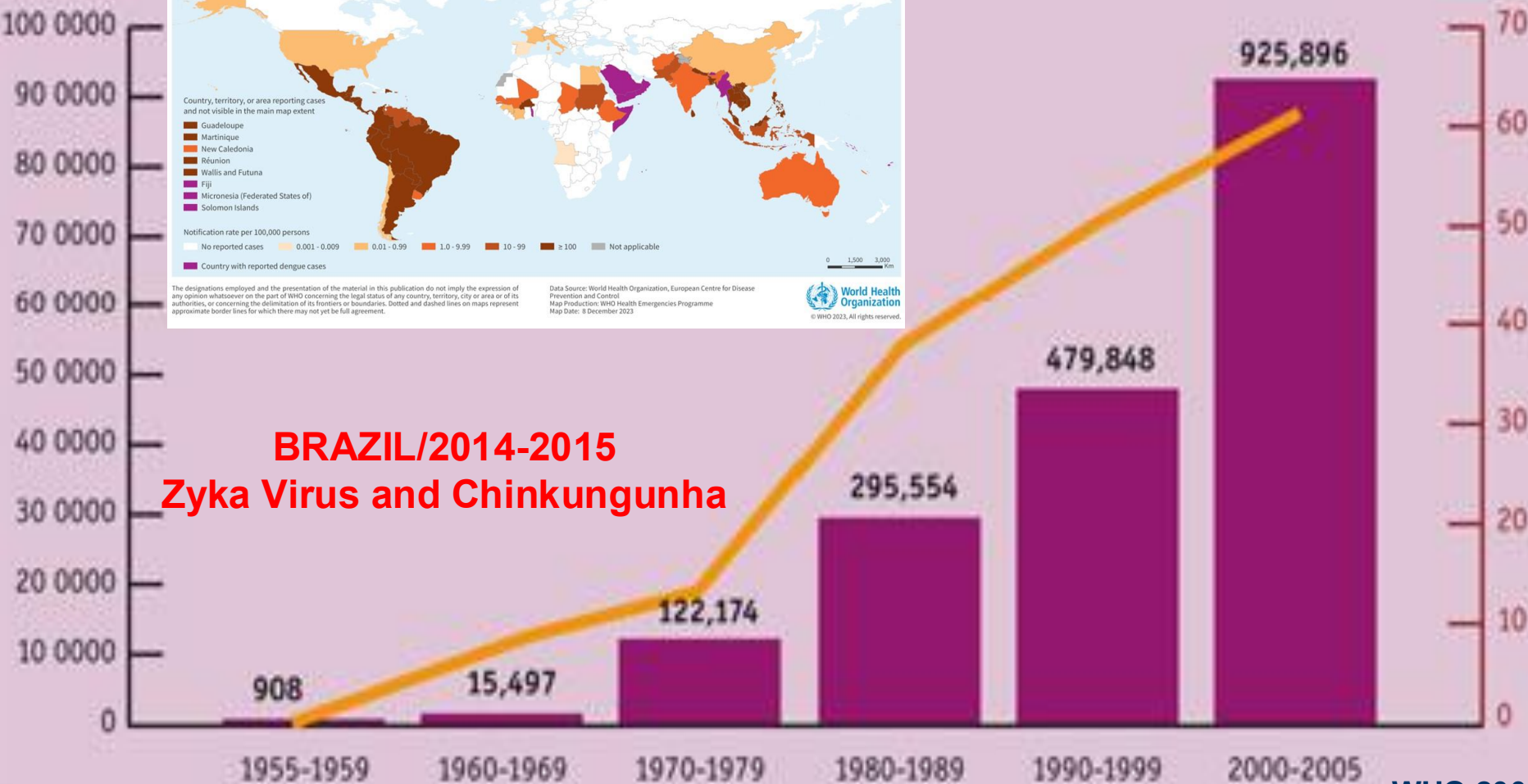
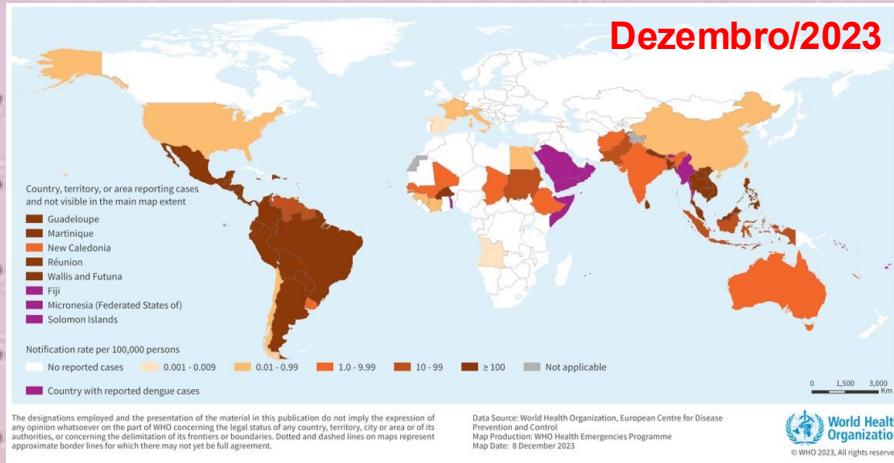


Enter keywords, authors, DOI, etc

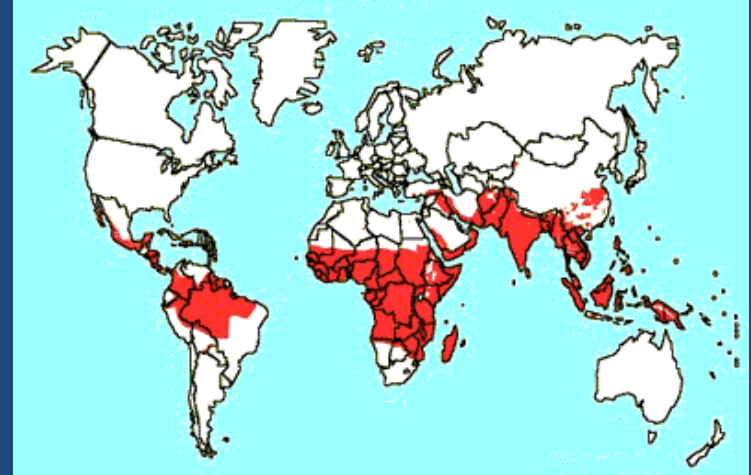
DENGUE: EVOLUÇÃO DOS CASOS (1955 – 2005) E EXPANSÃO DE CASOS AUTOCTONES (2023)

Figure 1. Average annual number of dengue fever/dengue haemorrhagic fever cases BRAZIL reported to WHO and of countries reporting dengue

**1,5 Milhão/2015
+ 6 milhões/2024**



A GEOGRAFIA DAS DOENÇAS : MAX SORRE E A MULTICAUSALIDADE!



Exemplo: Malaria

COMPLEO PATOGENICO

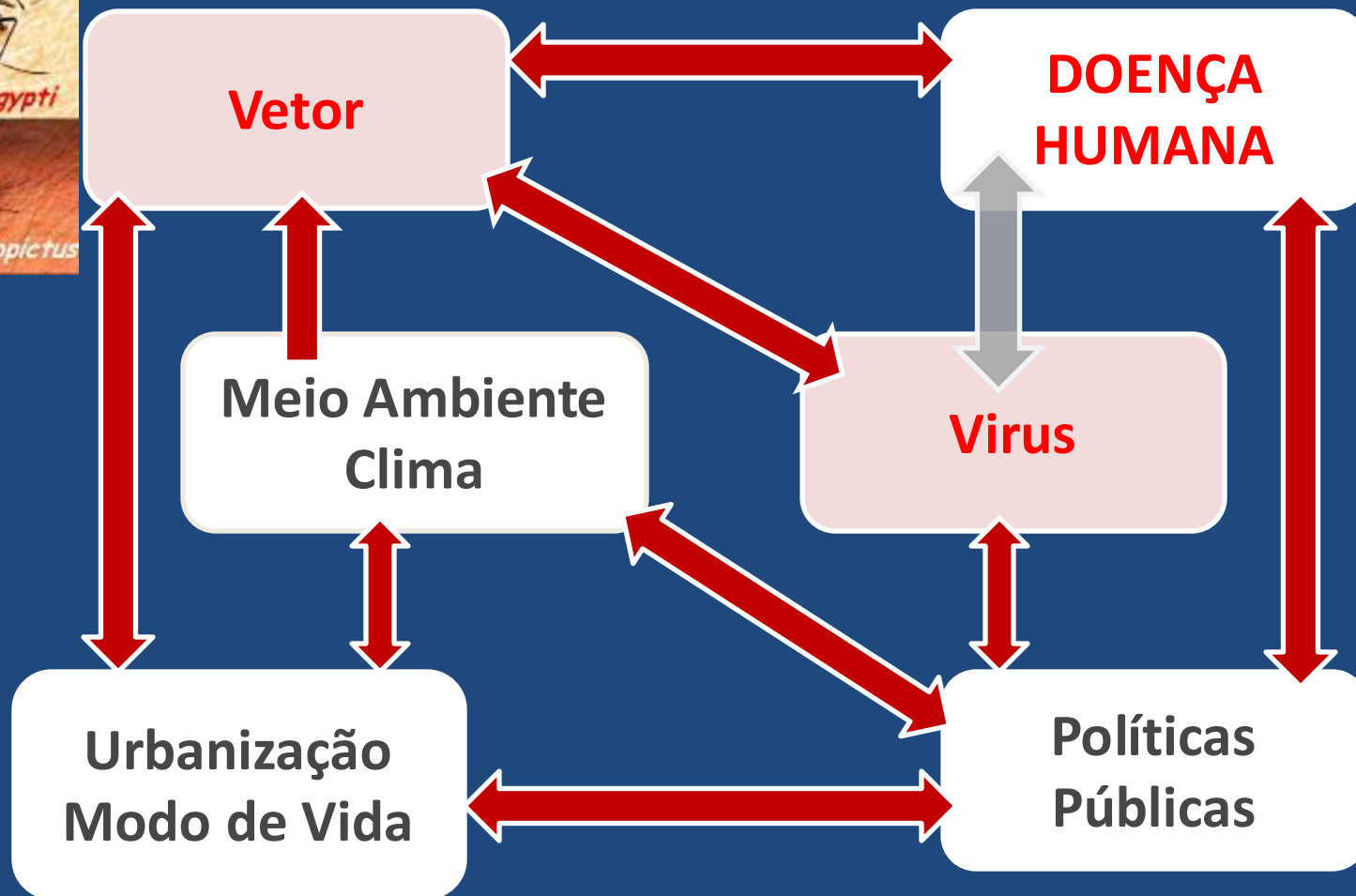
Meio Físico

Meio Vivo

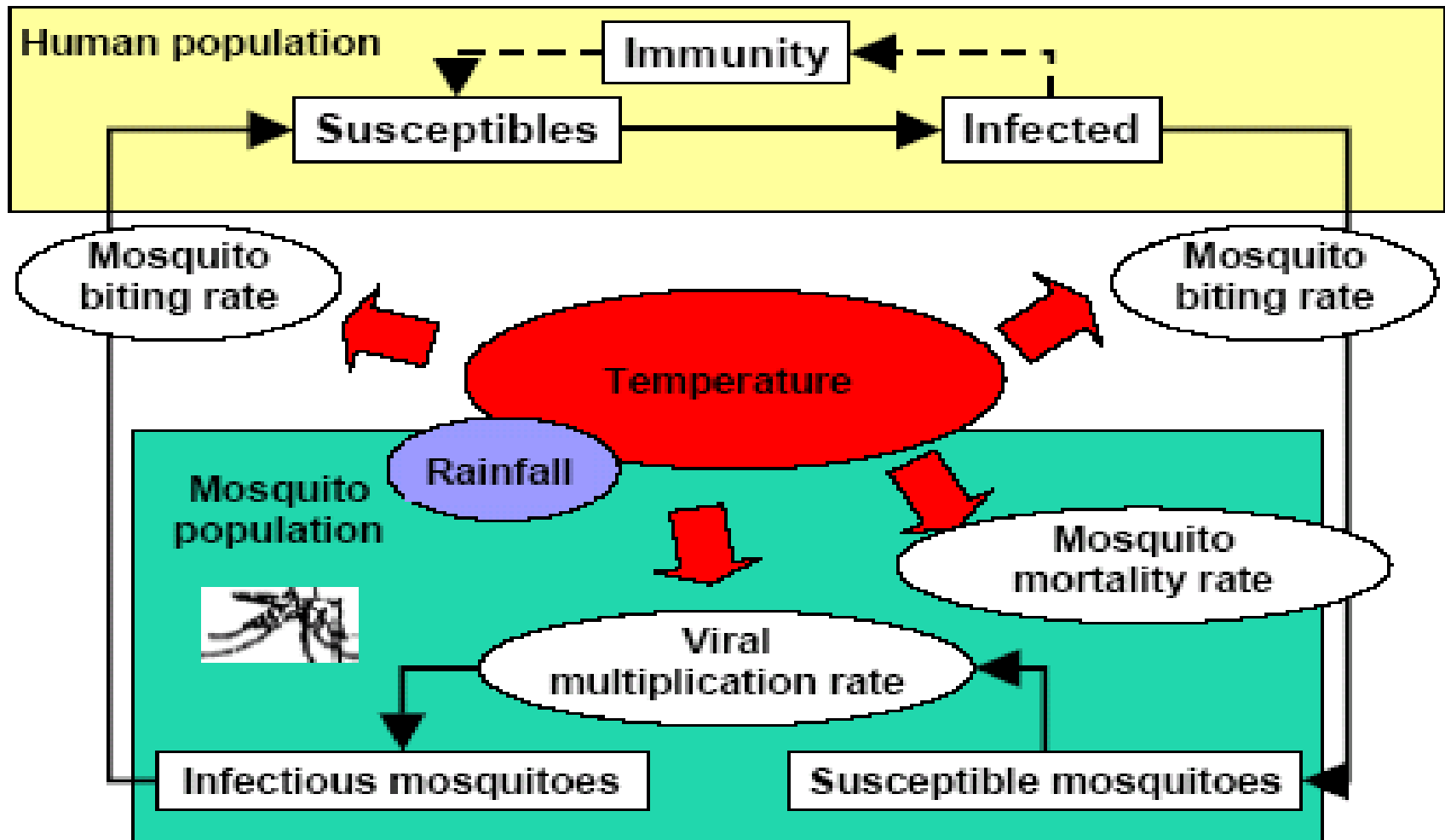
Meio Social

... DETERMINISMOS... PAISAGEM/REGIÃO... ECOLOGIA...

DENGUE – MULTICAUSALIDADE !

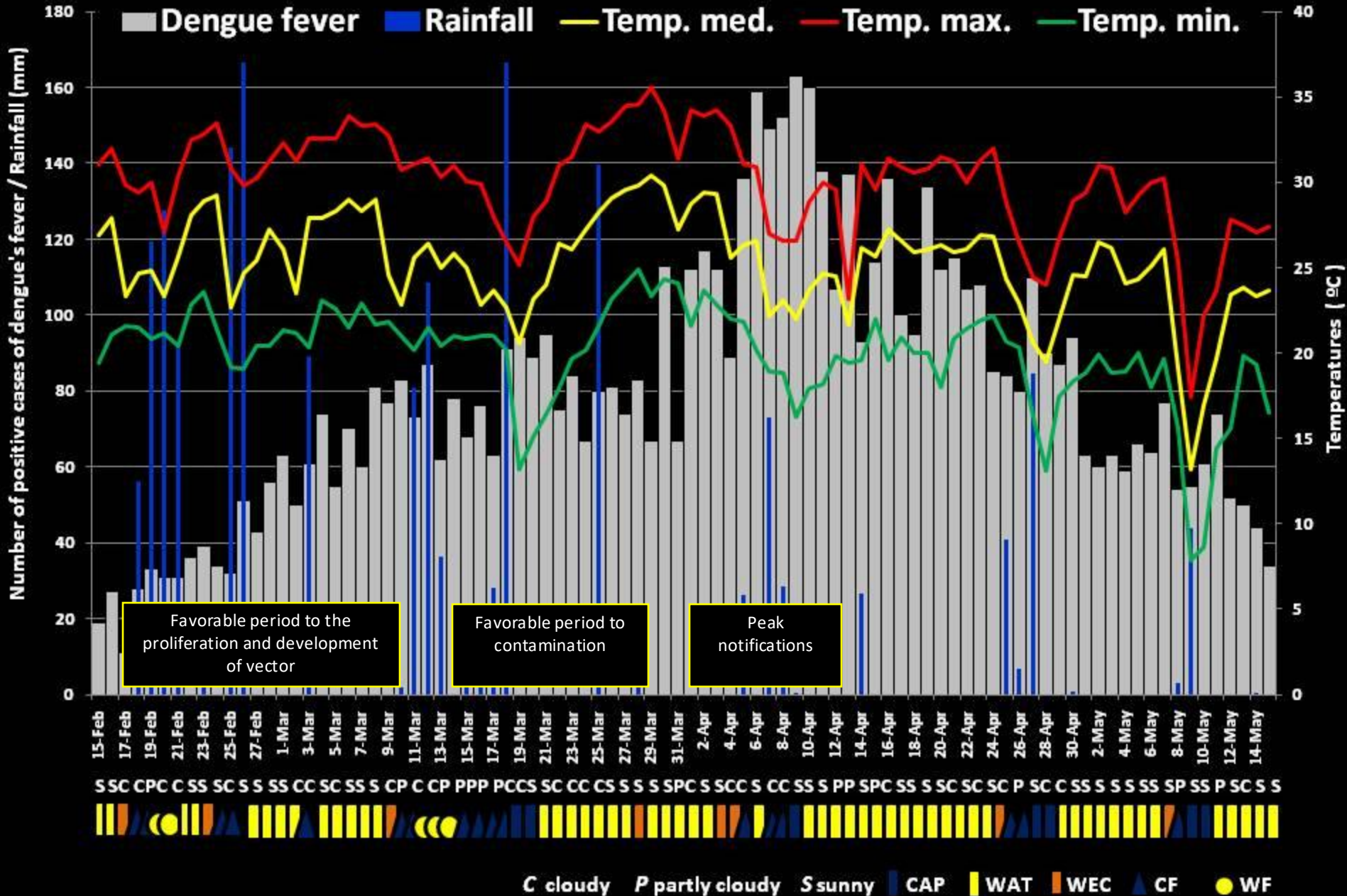


ARBOVIROSES E CLIMA !



(after Martens *et al.*, 1995)

Dengue's Fever Epidemic - Maringá 2006/07 - Brazil



A URBANIZAÇÃO BRASILEIRA



**INTENSIFICAÇÃO
DA DENGUE !**

BRASIL E REGIÃO SUL: INCIDENCIA DE CASOS DE DENGUE - Janeiro / 2007 - Março / 2024

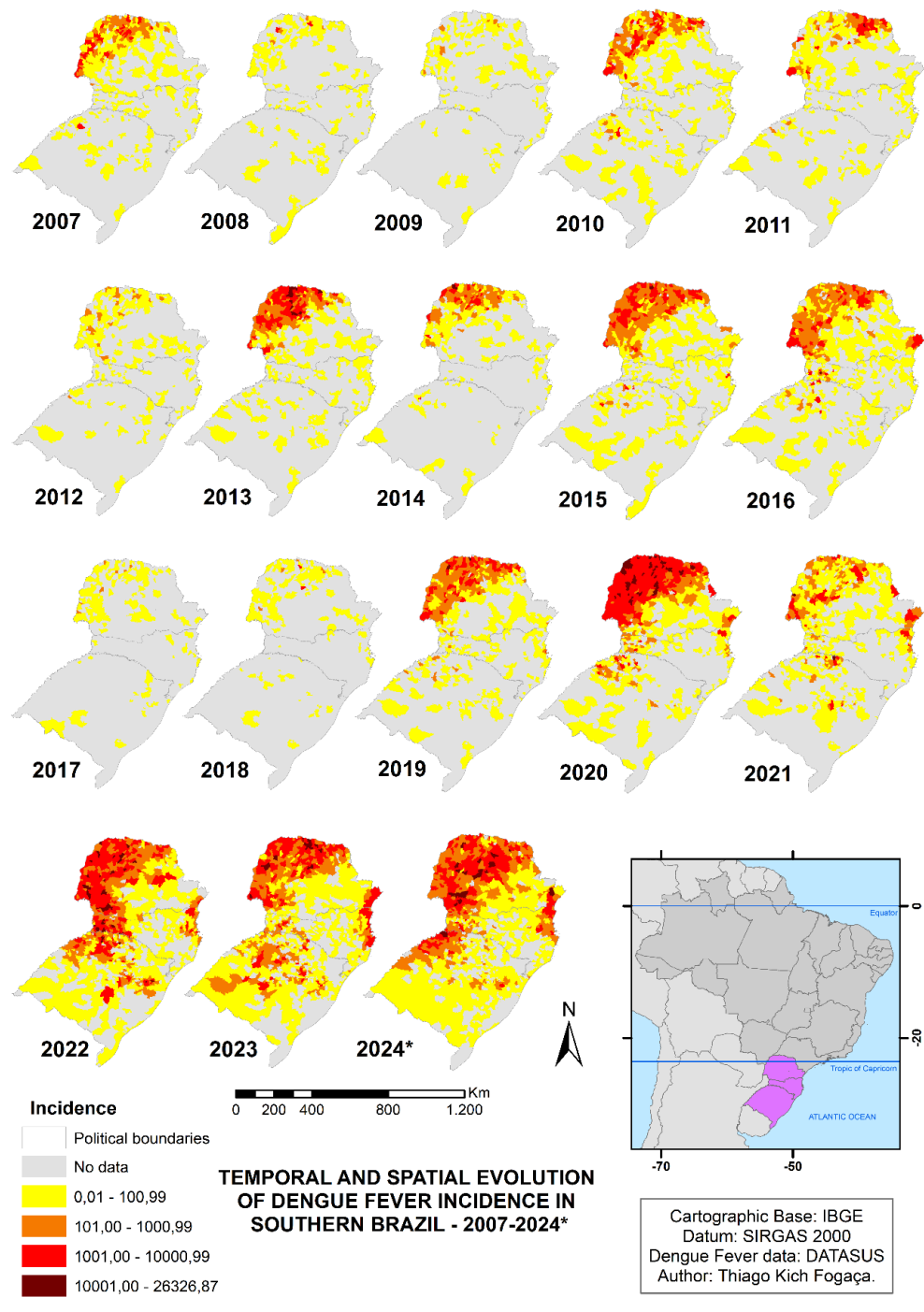
Municípios infestados pelo mosquito *Aedes aegypti*



Fonte: Ministério da Saúde

Source: Ministério da Saúde (2024)

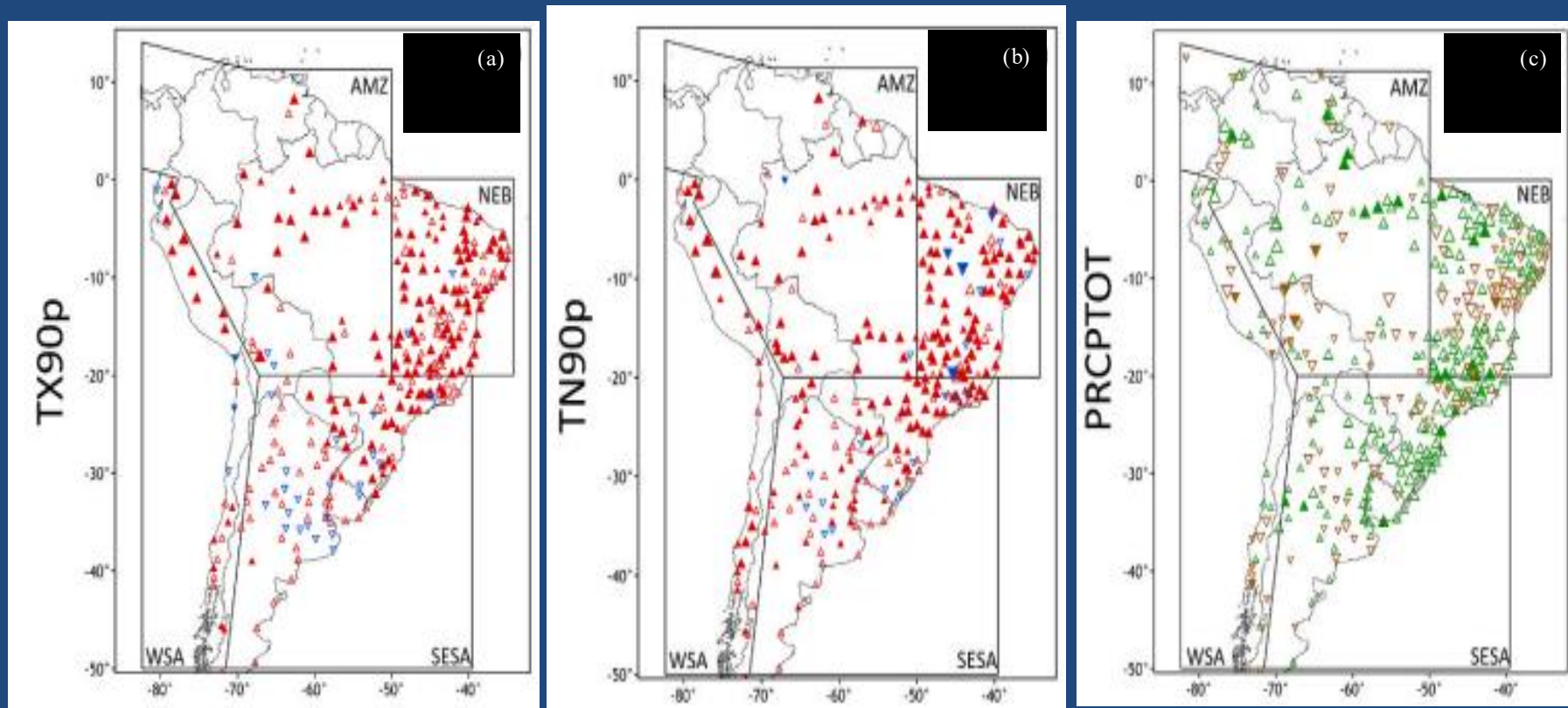
MENDONÇA, F.; SOEK, F. J. ; OSCAR JUNIOR, A. C. S. ; CANAVESE, D. ; POLIDORO, M. ; FOGACA, T.K. Climate change and neglected diseases: The dengue epidemic in southern Brazil. *Revista Brasileira de Climatologia*, v. 37, p. 251-274, 2025.



AMERICA DO SUL – MUDANÇA CLIMÁTICA (Dados observados)

- 1969 / 2009 -

(a) TX90p – dias quentes, (b) TN90p – noites quentes e (c) PRCPTOT – número de dias chuvosos/ano/mm.



Fonte: Adaptado de Dereczynski et al. (2020).

REGION SUL: CASOS DE DENGUE

- 2007 / 2024 -

	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Paraná	Cases	25884	1039	950	34436	29089	3685	59833	20021
Inc*.		225.66	9.06	8.28	300.19	253.58	32.12	521.59	174.53	369.27
Year		2016	2017	2018	2019	2020	2021	2022	2023	2024
Cases		57919	879	837	41075	237284	27243	145925	165012	157238
Inc*.		504.90	7.66	7.30	358.07	2068.50	237.49	1271.98	1438.36	1370.59
Santa Catarina	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Cases	113	55	46	166	131	79	284	72	3679
	Inc*.	2.11	1.03	0.86	2.66	2.10	1.26	4.55	1.15	58.91
	Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Cases	4451	24	64	1952	11443	19166	83388	119160	30162
	Inc*.	71.27	0.38	1.02	31.25	183.22	306.88	1098.59	1569.87	397.37
Rio Grande do Sul	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Cases	3477	3231	3240	3319	217	994	2240	2144	2143
	Inc*.	22.59	20.99	21.05	31.53	2.06	9.44	21.28	20.37	20.36
	Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Cases	1661	1858	6496	47652	66157	81420	67206	38223	37956
	Inc*.	15.78	17.65	61.71	452.64	628.42	773.41	1252.07	712.11	707.13

*Incidencia por 100.000 habitantes. Fonte: MS (2024).

SANTA CATARINA: CASOS E MORTOS POR DENGUE – 2025 E 2022/23/24

NÚMERO FOCOS: 32.833

DENGUE

NOTIFICAÇÕES
54.370
CASOS PROVÁVEIS
16.543

CHIKUNGUNYA

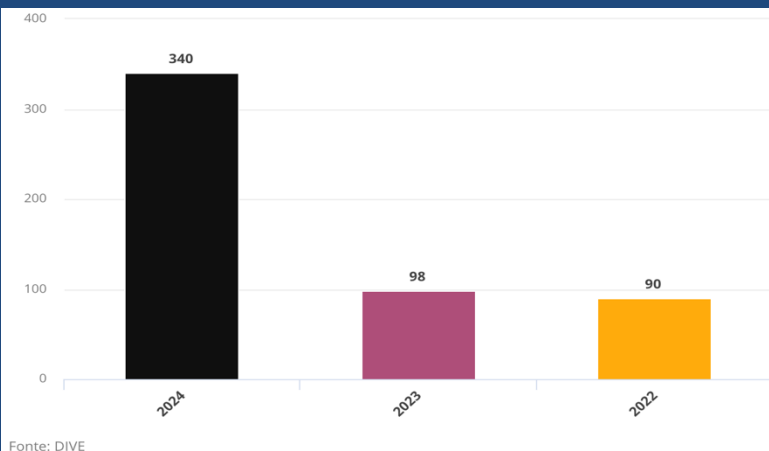
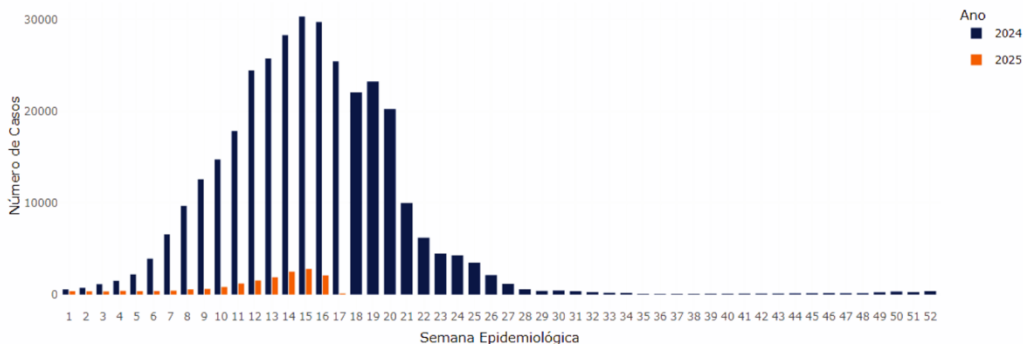
NOTIFICAÇÕES
1.427
CASOS PROVÁVEIS
707

ZIKA

NOTIFICAÇÕES
48
CASOS PROVÁVEIS
08

INFORME EPIDEMIOLÓGICO · SITUAÇÃO EPIDEMIOLÓGICA DE DENGUE, CHIKUNGUNYA E ZIKA EM SANTA CATARINA

GRÁFICO 2: Casos prováveis de dengue, segundo semana epidemiológica de início dos sintomas. Santa Catarina, 2024-2025*.



REGIÃO SUL / BRASIL: SOROTIPOS DE DENGUE

- 2014-2025 -

State	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Paraná	1, 2, 4	1, 2, 4	1, 2, 3, 4	1, 2, 4	1, 2, 4	1, 2, 4	1, 2, 3, 4	1, 2	1, 2, 4	1, 2, 3	1, 2, 3, 4
Santa Catarina	1	1	1		1, 2	1, 2	1, 2, 3	1, 2	1, 2, 3, 4	1, 2, 3	1, 2, 4
Rio Grande do Sul	1, 4	1, 4	1, 2	1	1, 2	1, 2, 4	1	1	1, 2	1, 2	1, 2

DENV1, DENV2, DENV3 e DENV4.

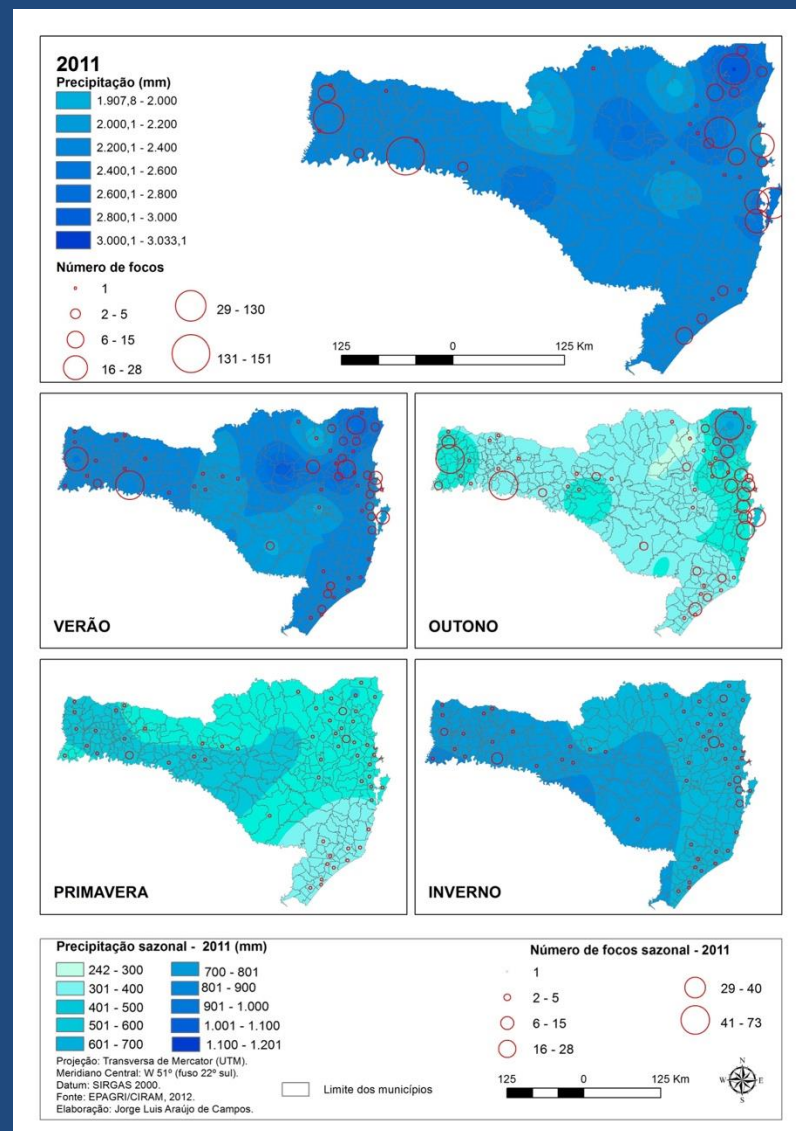
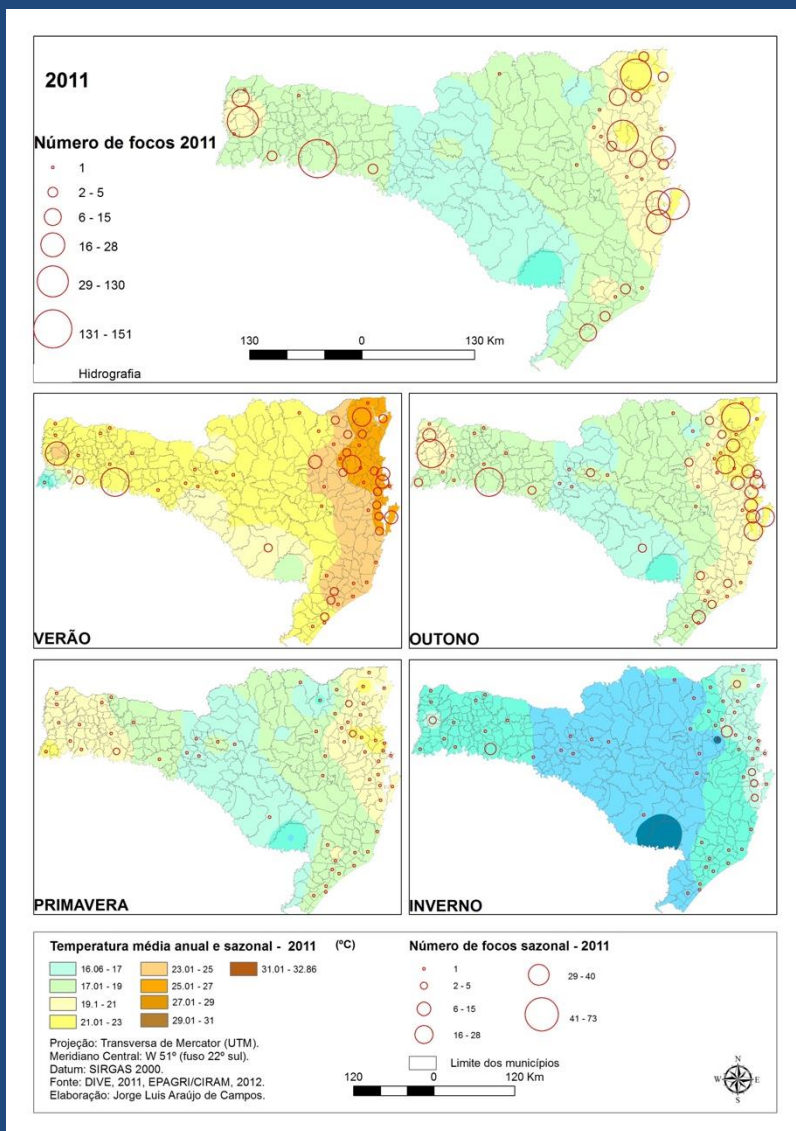
*Dados disponíveis de Janeiro/2014 a Março/2024.

Fonte: MS, 2024. SS/SC 2025

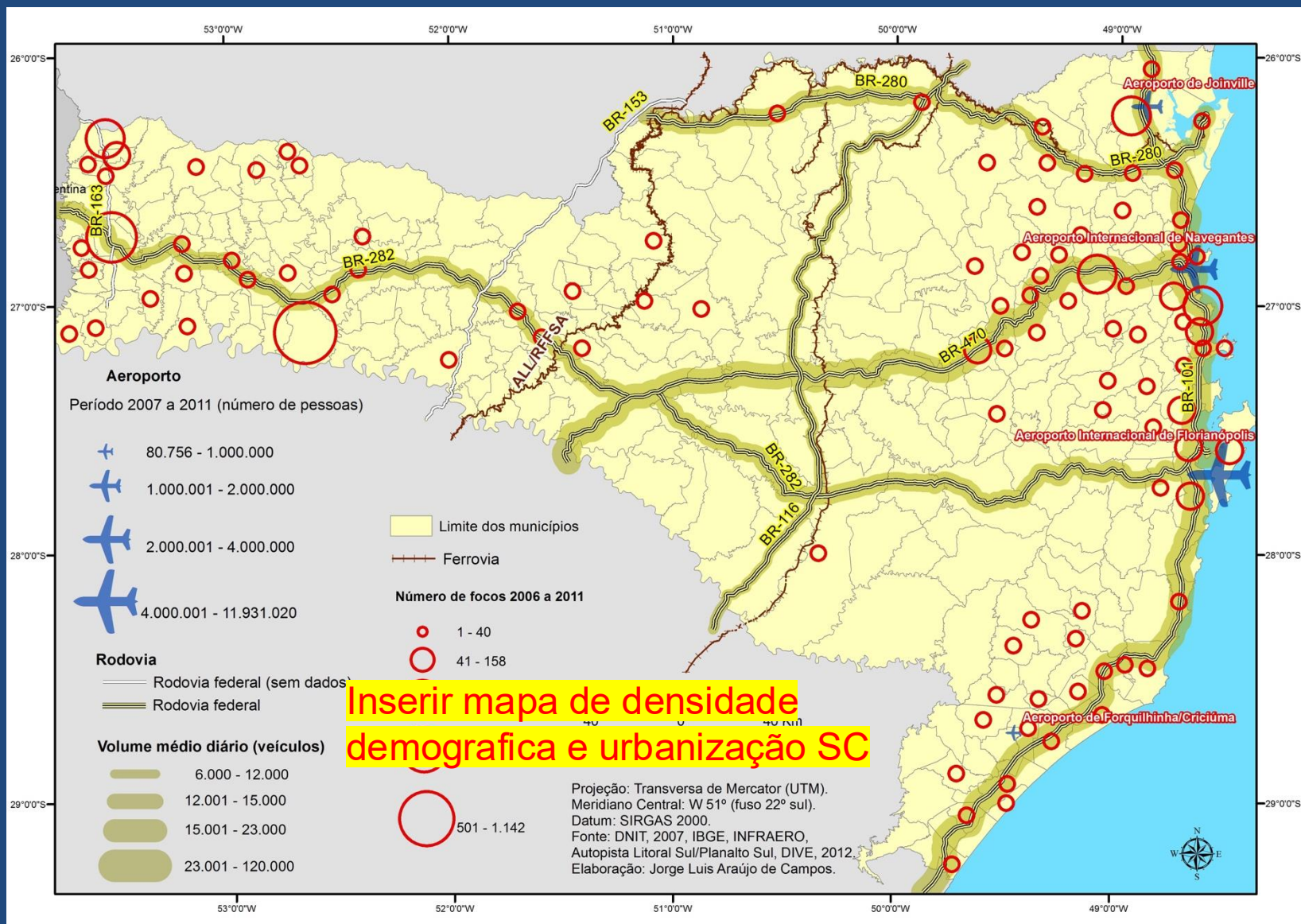
2025 – Sorotipos 1, 2 e 3

SC – FOCOS DE DENGUE E SAZONALIDADE

- 2006 / 2011 -

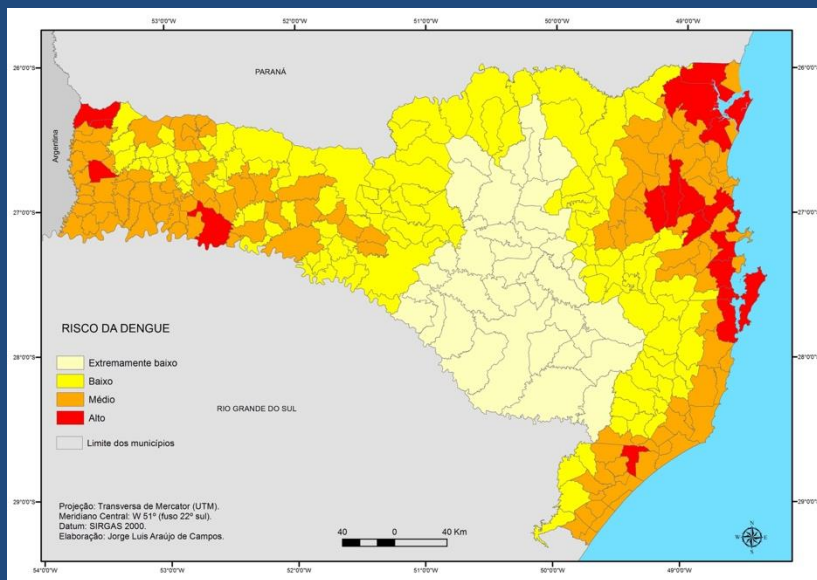


SC – FOSCO DE DENGUE E MALHA VIÁRIA - 2006 / 2011 -



**Inserir mapa de densidade
demografica e urbanização SC**

SC – RISCO E INCIDÊNCIA DE DENGUE POR MUNICÍPIOS - 2006 / 2011 e 2025



Fonte: Campos, J.; 2014

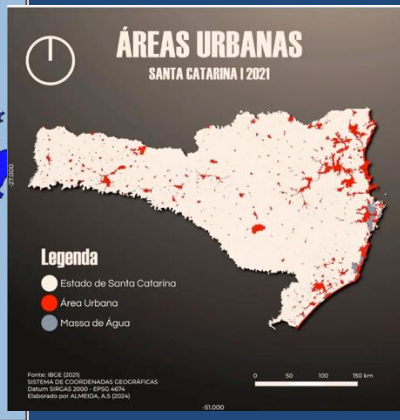
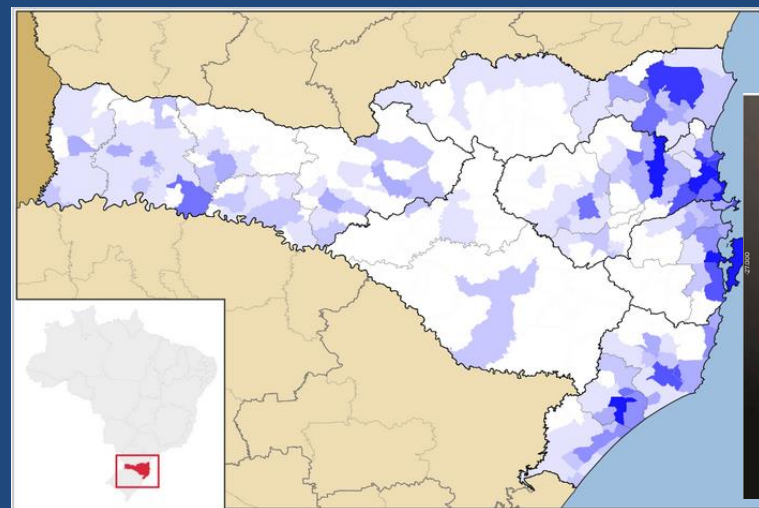


FIGURA 1. Mapa dos municípios segundo a situação entomológica. Santa Catarina, 2025*.

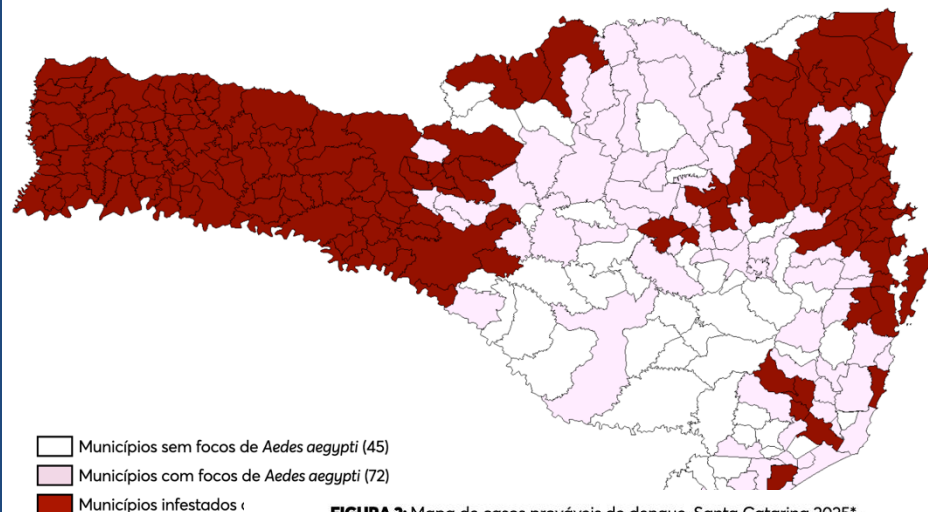
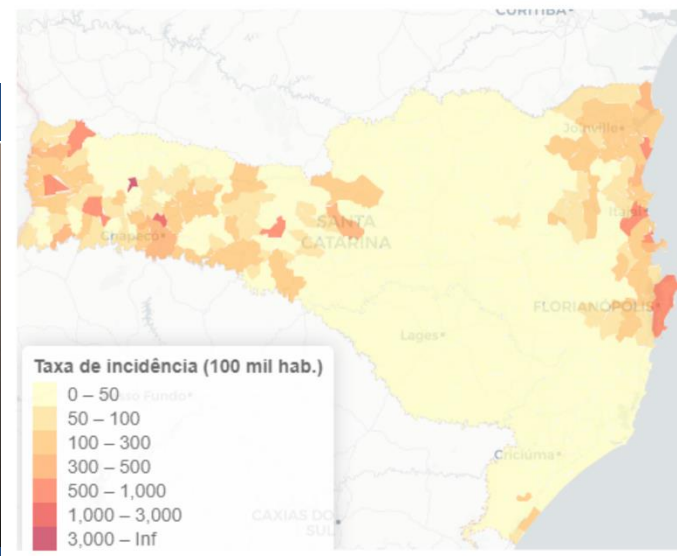


FIGURA 2: Mapa de casos prováveis de dengue. Santa Catarina 2025*.



Fonte: SINAN On-line. *Dados atualizados em 21/04/2025.

SACDENGUE

SISTEMA CLIMATICO- METEOROLOGICO DE ALERTA À FORMAÇÃO DE EPIDEMIAS DE DENGUE

METEOROLOGICAL DATA



Research / Management System



Epidemiological data/
Control actions



DIAGNOSE



RISCO
CLIMÁTICO



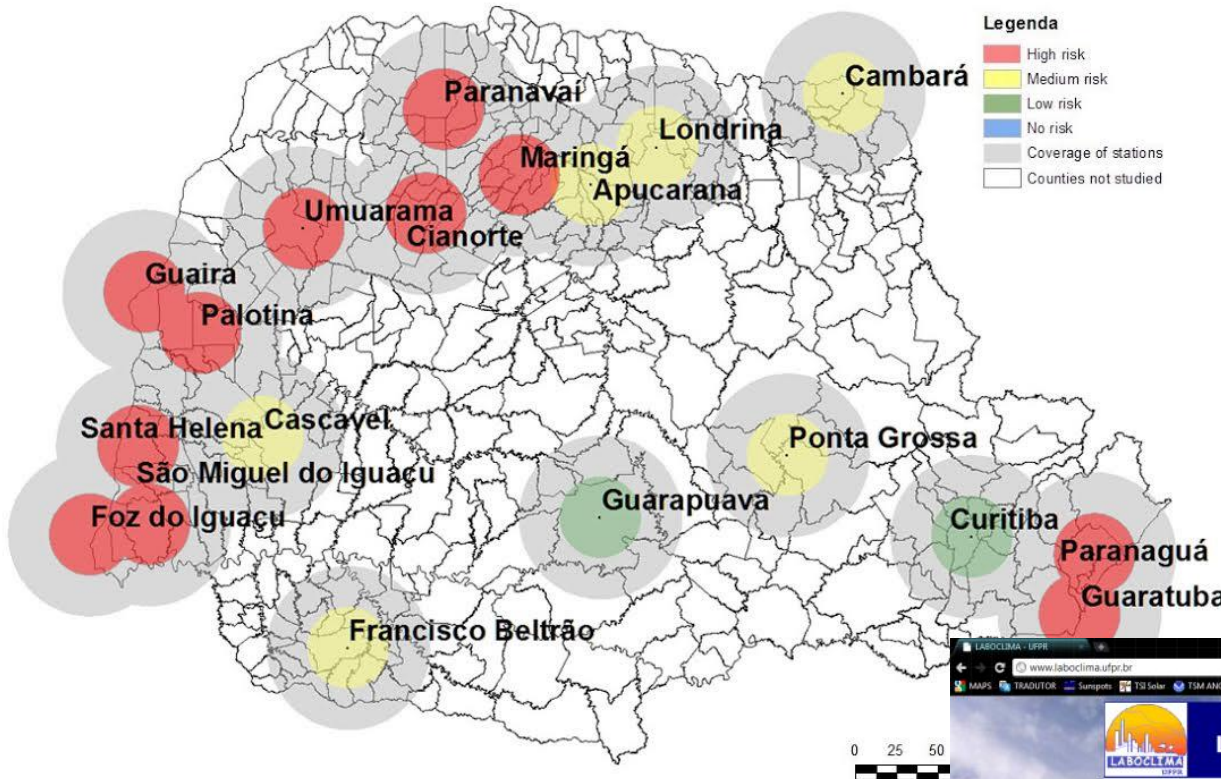
PREVENÇÃO

DENGUE :
MONITORAMENT
O
E CONTROLE
DO VETOR

SACDENGUE

CONDIÇÕES CLIMÁTICAS DE RISCO DE DENGUE

Risk	Temperature	Precipitation	Period
High Risk	Prevalence (in hours) of maximum and minimum temperatures between 22 °C and 30 °C	Exceeding 10 mm / day	72-120 hours (before or after rain)
Medium Risk	Prevalence (in hours) minimum temperatures between 20 ° and 22 ° C and maximum 30 °C and 32 ° C	Exceeding 20 mm / day	120-168 hours (before or after rain)
Low Risk	Prevalence (in hours) minimum temperatures between 18 °C and 20 ° C and maximum 32°C and 34°C.	Exceeding 30 mm / day	More than 168 hours (before or after rain)
No Risk	Prevalence (in hours) minimum temperatures below 18 ° C and maximum above 34 ° C	Continuous rainfall or no rainfall	-

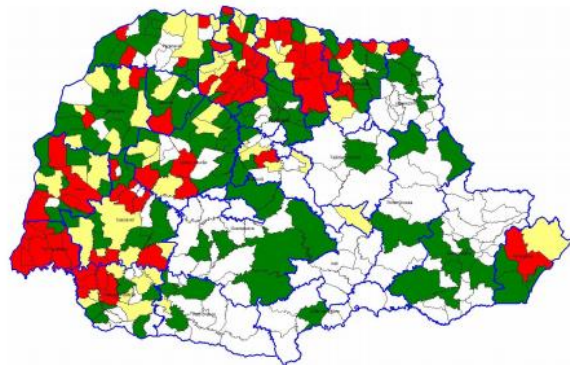


Legenda

- High risk
- Medium risk
- Low risk
- No risk
- Coverage of stations
- Counties not studied

SACDENGUE

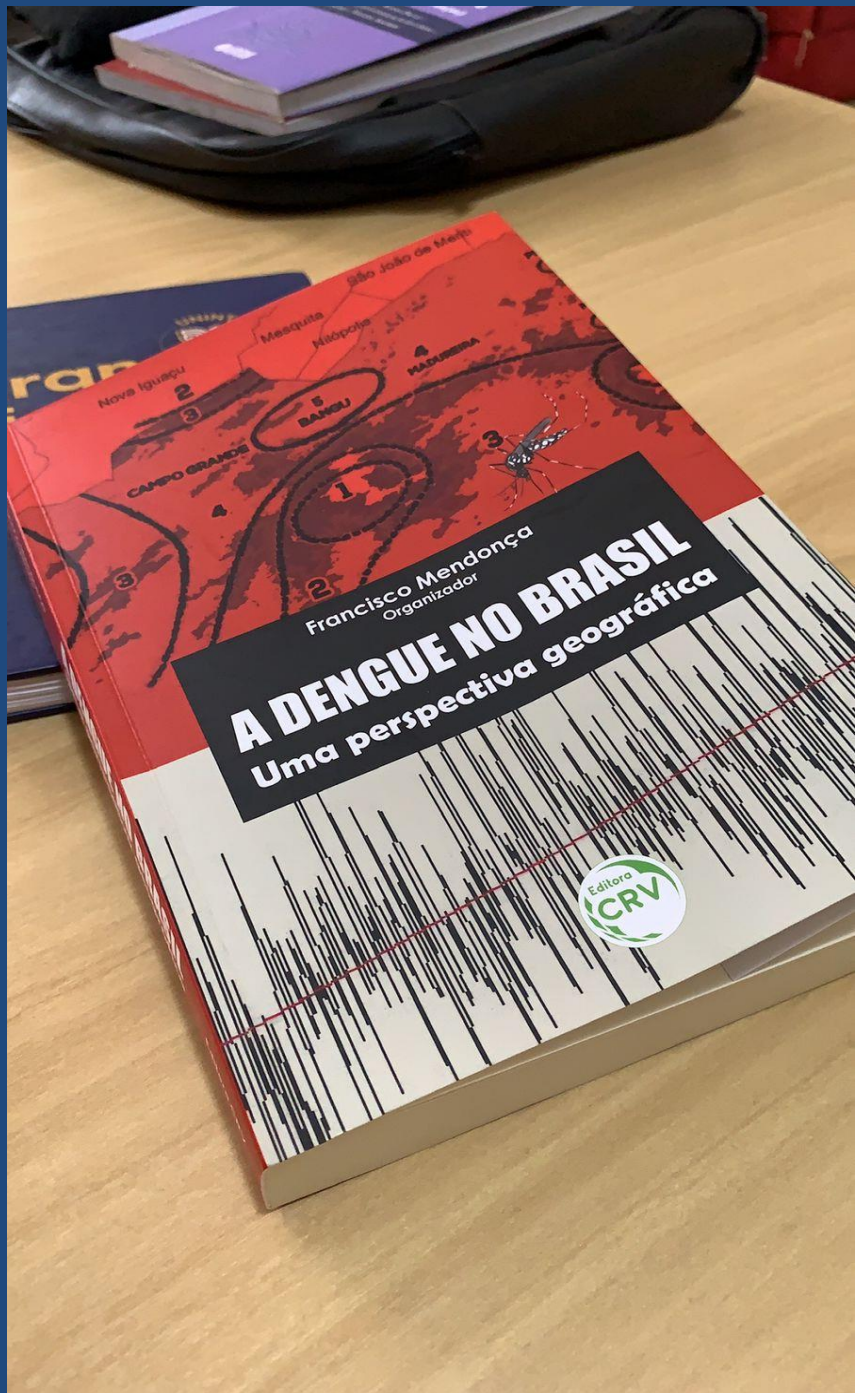
RISCO DE FORMAÇÃO - DE EPIDEMIAS DE DENGUE NO PARANÁ



Legenda Incidência

- Sem caso
140 Municípios
- < 100 Casos/100.000 hab
126 Municípios
- 100 a < 300 Casos/100.000 hab
59 Municípios
- ≥ 300 Casos/100.000 hab
74 Municípios

Fonte: SESA/SVS/Sala de Situação
Figura 2 – Classificação dos municípios segundo incidência de dengue por 100.000 habitantes – Paraná – Semana Epidemiológica 31/2015 a 19/2016*.



*Grato pela
atenção!*