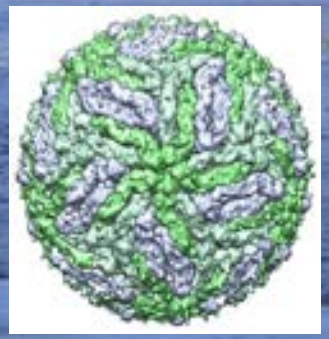
MetaPopulation Dynamics of Dengue in French Polynesia



MEAPOPULATON DYNAMICS OF DENGUE EPIDEMICS IN FRENCH POLYNESIA

Objectives:

- Study the relationship of dengue epidemiology among islands, archipelagos
- Assess the relative roles of external seeding vs internal circulation in the sustainability of dengue in French Polynesia
- Identify key factors of dengue dynamics in French Polynesia

Key points :

- Gather all the data needed
- Acquire modelling knowledge and skill
- Use metapopulation theory for dengue in French Polynesia
- Use Agent based Models to study the local dynamical system

POPULATION AND MIGRATION DATA

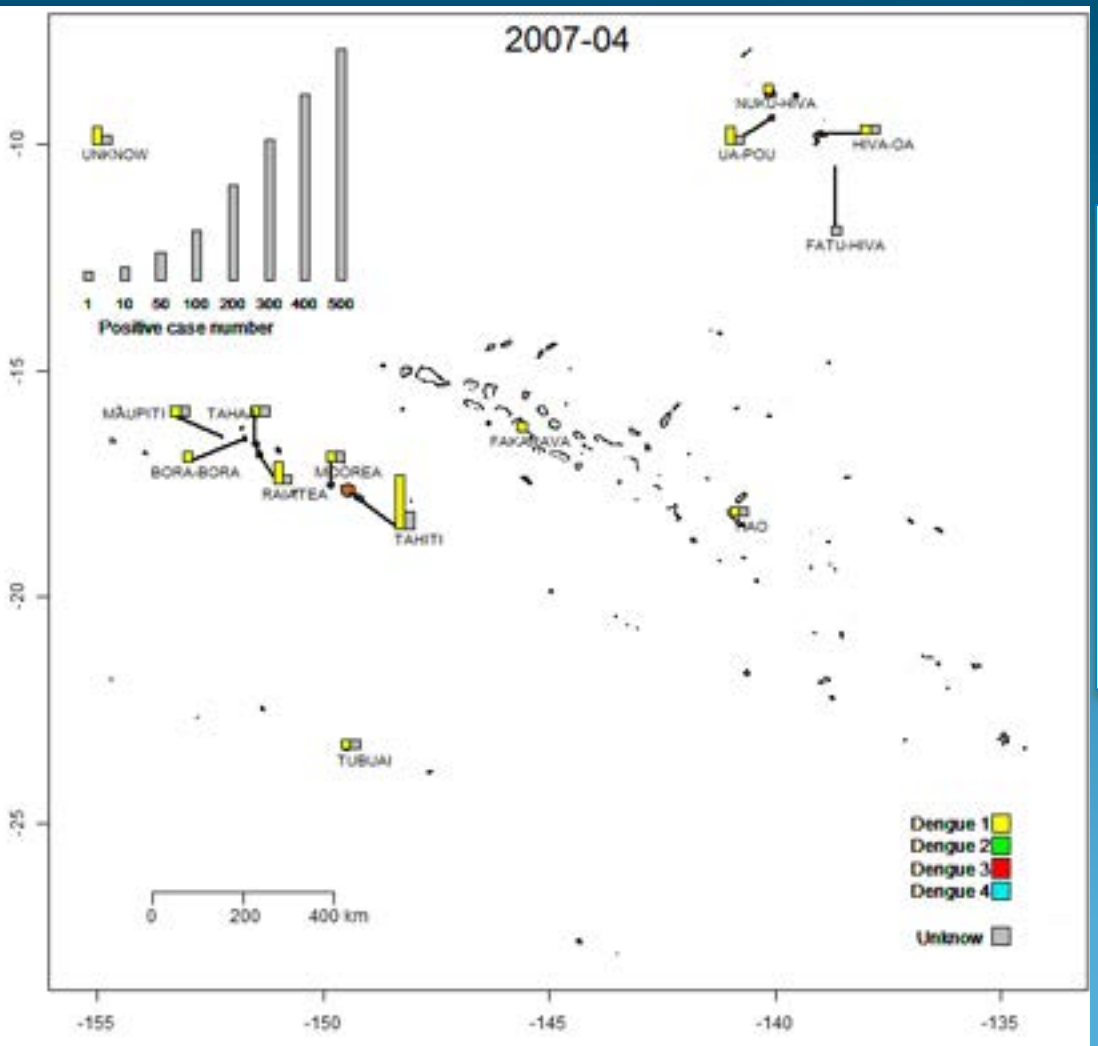
Patient localization (1979-2014)
Patient age (1988-2014)
Patient gender (1979-2009)
Population Number (census and estimated)
French Polynesia, Archipelago, Islands, Townships

Airlines, boat travel frequencies
Traveler population between archipelagos, islands
Density of the population

Population in 1975:
French Polynesia:
131 311
IDV: 95062
ISLV: 16098
MARQ: 5480
AUST: 5162
TUAM: 8190
GAMB: 560

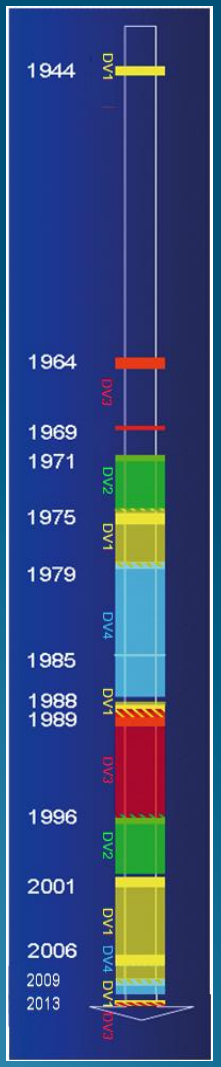
Population in 2013
French Polynesia:
269 993
IDV: 202140
ISLV: 34911
MARQ: 9392
AUST: 6946
TUAM: 15189
GAMB:1437

DENGUE DATA

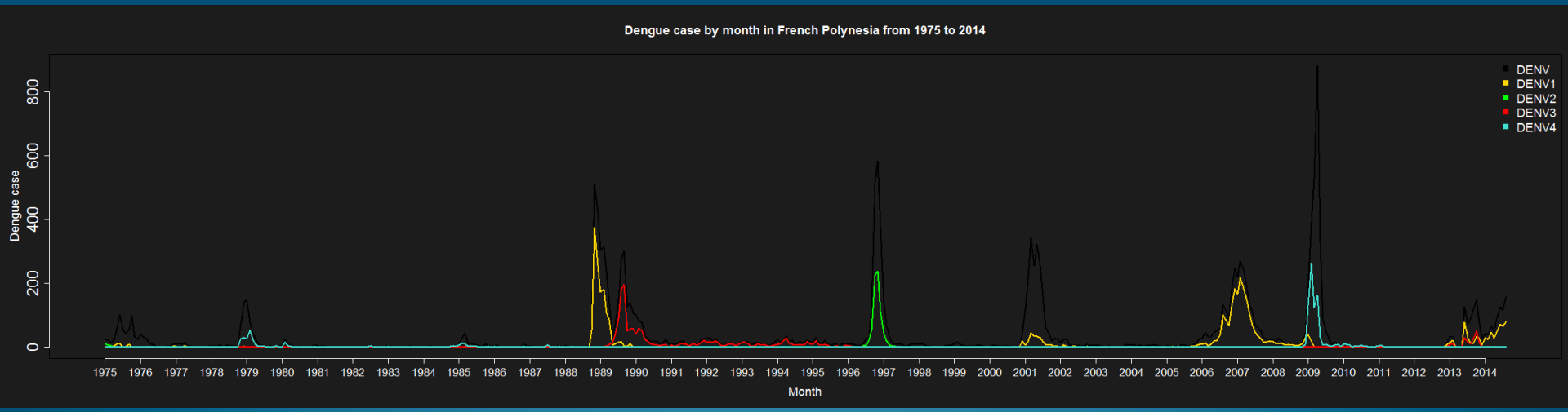


1975 to 10/2014:
Dengue case Number:

DENV: 17240
DENV-1: 4224
DENV-2: 768
DENV-3: 1679
DENV-4: 1134



DENGUE IN FRENCH POLYNESIA

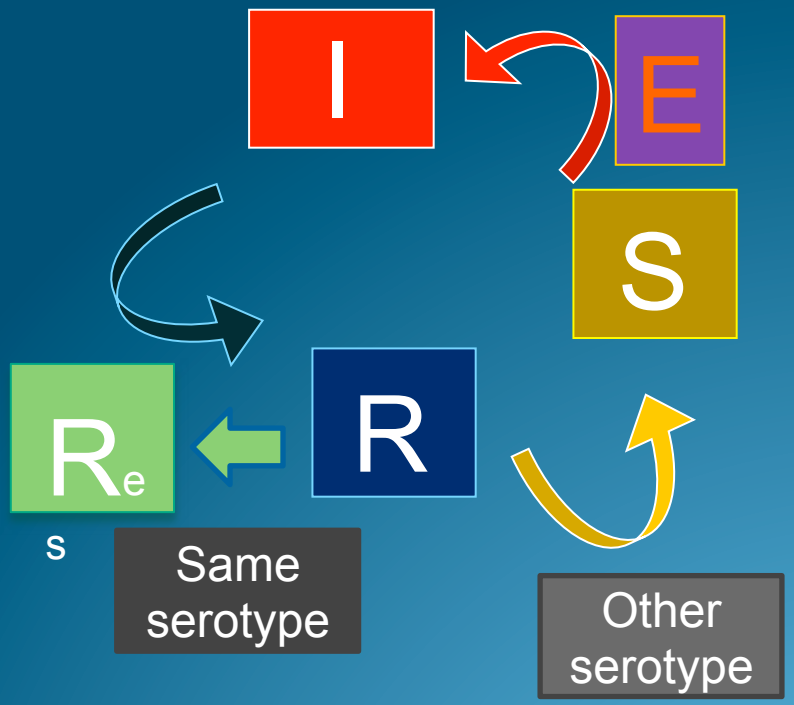


Dengue case in French Polynesia from 1975 to 2014 by Month

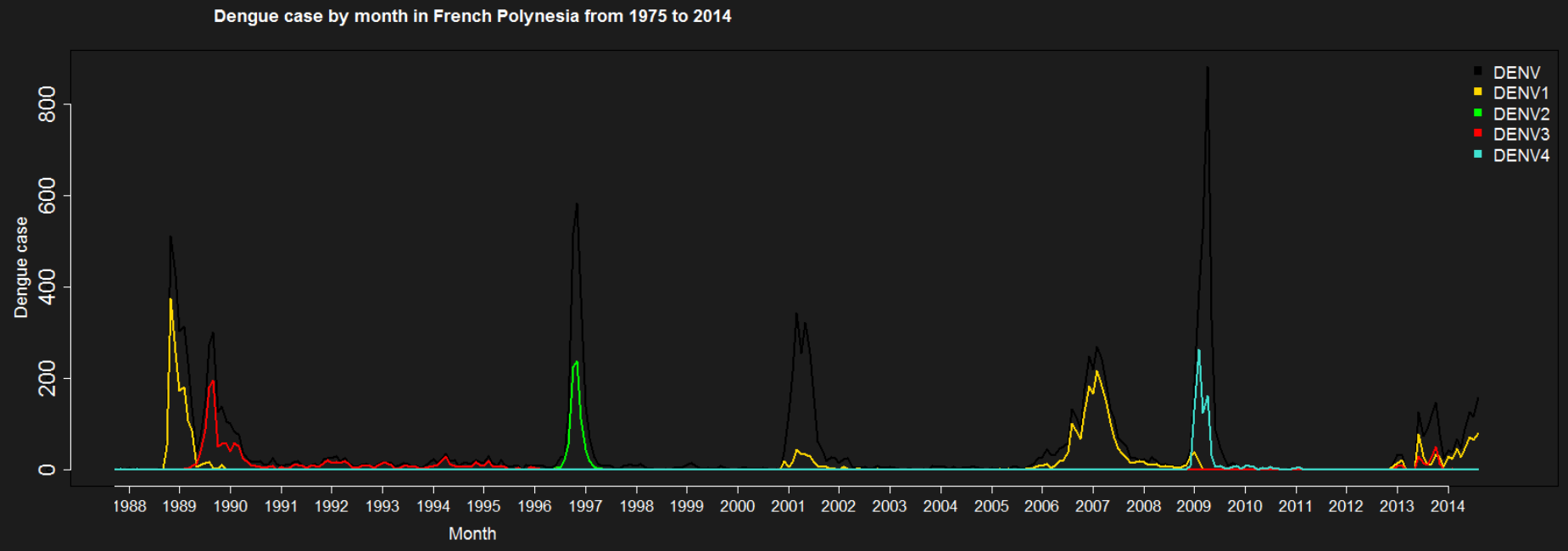
y = Dengue case number
x = Month

DENV
DENV1
DENV2
DENV3
DENV4

MODELING



Thank you for your attention


Dengue case by month in French Polynesia from 1975 to 2014
Dengue case
0
200
400
600
800
DENV
DENV1
DENV2
DENV3
DENV4
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Month