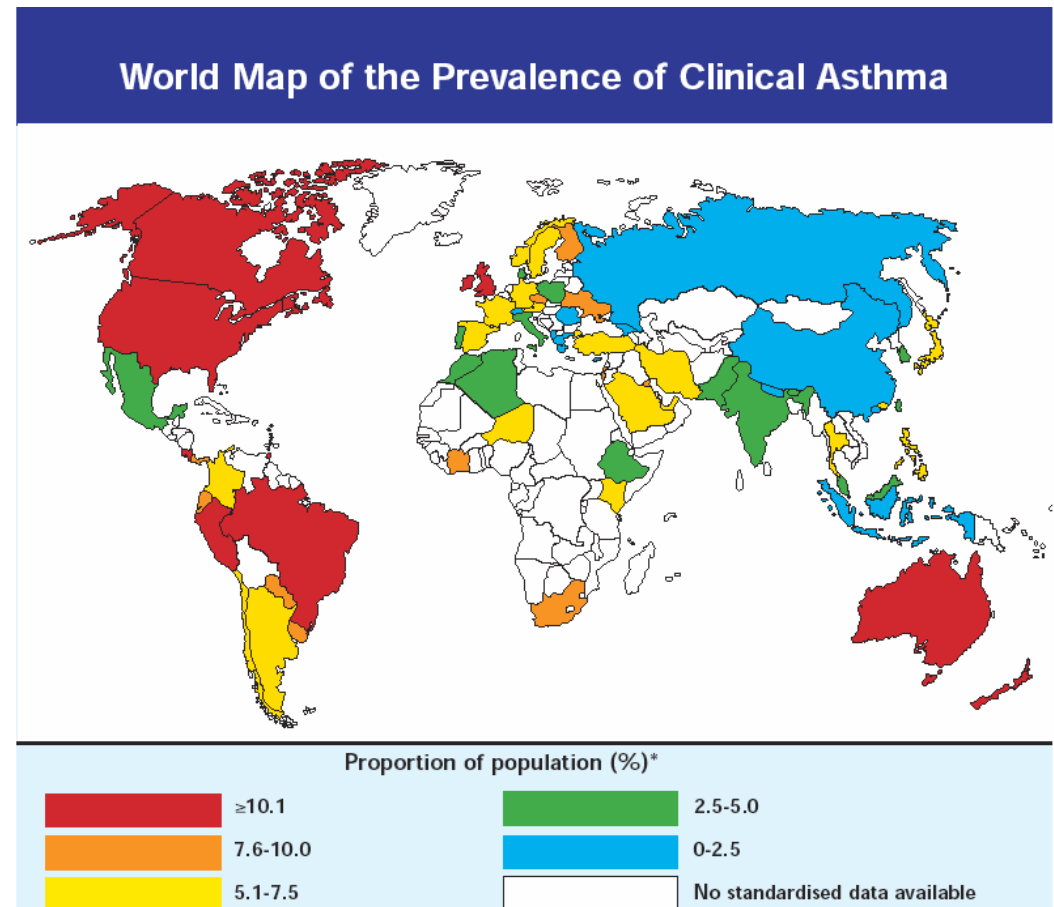


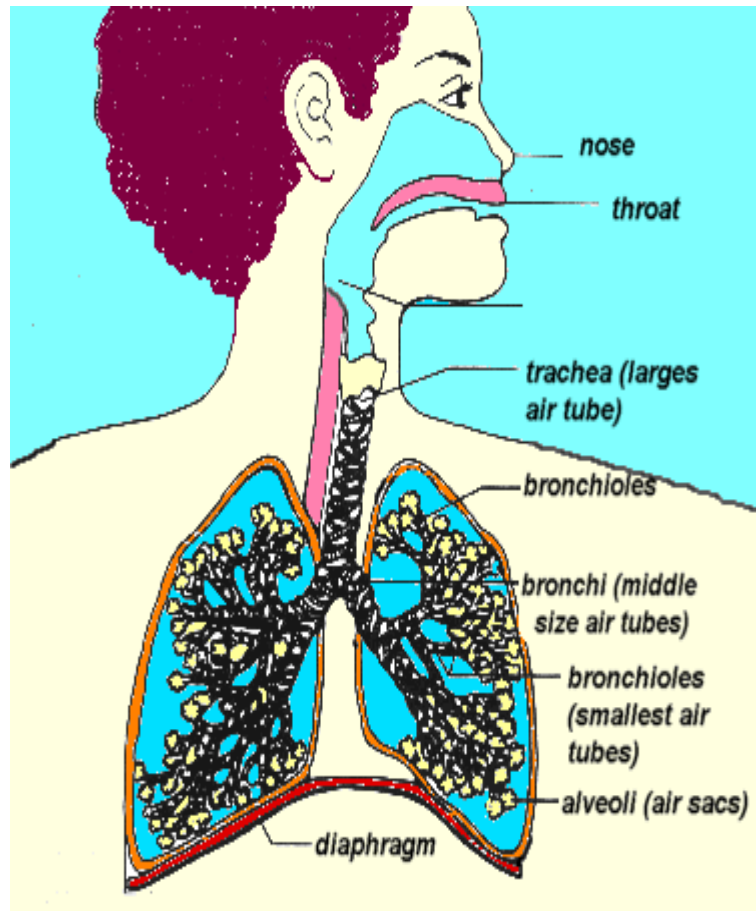
# Calidad de Aire y Factores Ambientales Relacionados con el Asma en Puerto Rico

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Raquel Suro  
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Christian Velez



# Asma: Condicion Biomedico Ambiental Cronica



## ETIOLOGIA:

- Genetica?
- Ambiental?
- Ambas?

## PESADILLA DE SALUD PUBLICA

- Costos de los servicios medicos (EU)

General	\$ 18 - 20 billones/anuales
Ninos	\$ 3.2 billones/anuales

# Asma y la Salud Publica

CDC / BFRSS

	<b>EU</b>	<b>Puerto Rico</b>
Total adultos	7.5%	11.5% / 15.9%
Adultos Anglo	7.6%	
Adultos Negros	9.0%	
Adultos Hispanos	7.7%	10.6%
Niños	6.2%	33.2%

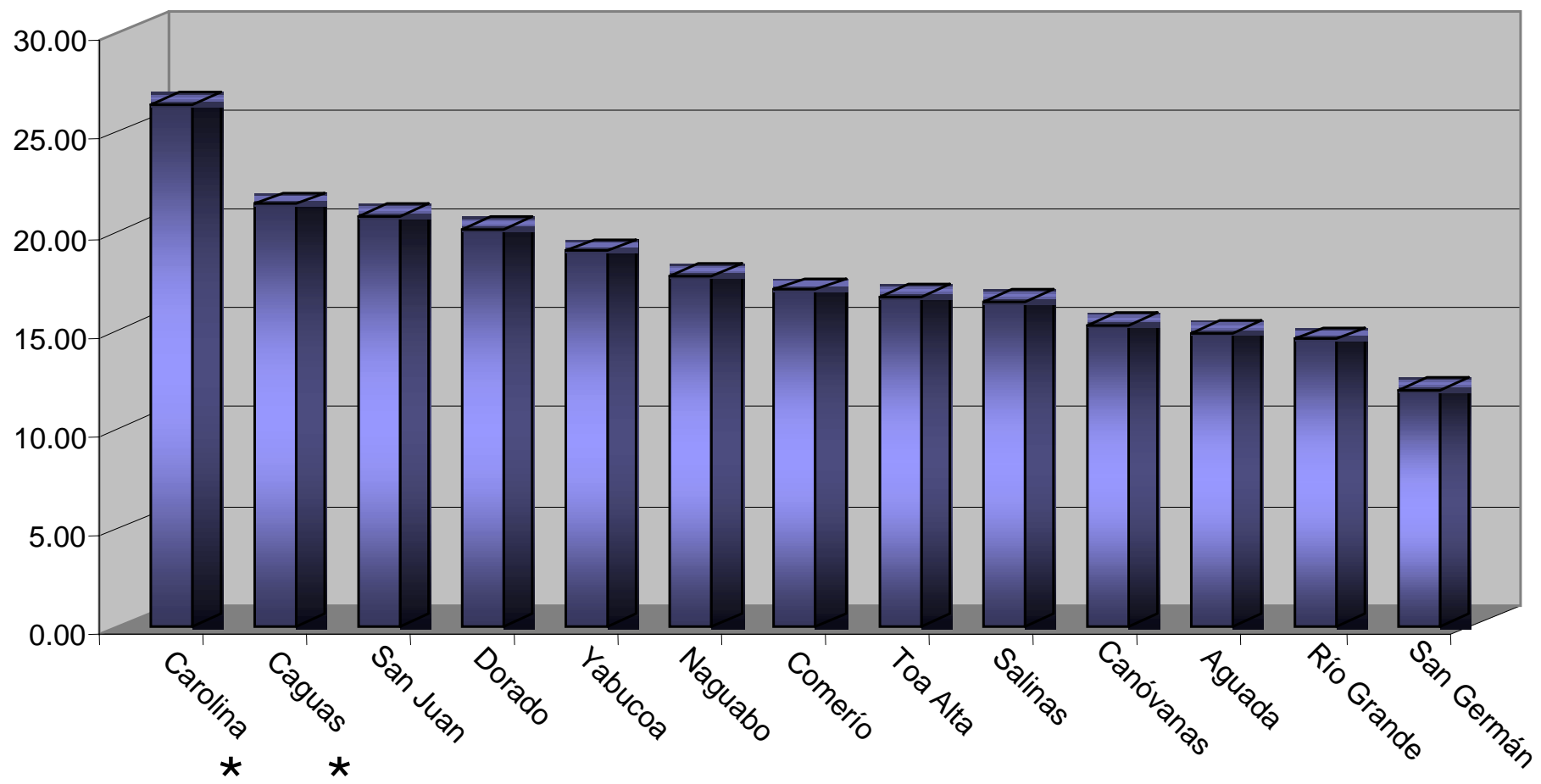
# ASMA COMO UNA DESIGUALDAD DE SALUD

- Carter-Porkas and Gergen (1993)
- Beckett (1996)
- Lara (1999)
- Ledogar (2000)
- Colp (1990)
- Crain (1994)

# INVESTIGACION EN ASMA EN PUERTO RICO

- Epidemiologia
  - Perez-Perdomo (2000)
  - Nazario (2004)
- Educacion and Prevencion
  - Proyecto AIRE
  - Colores del Asma
  - Coalicion del Asma
- Asma Clinica – Tratamiento y Servicios Medicos
  - Proyecto EXPORT
- Asma Ambiental
  - Interior -Roure and Ramirez (1970)  
Montealegre (2004)
  - Exterior – Reyes (2000)

### Prevalencia de Asma Edades 0-17 2001

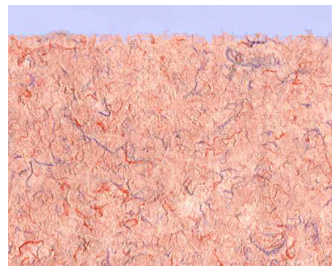
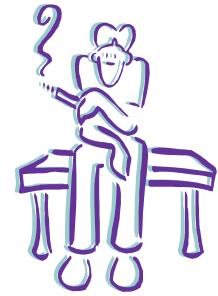
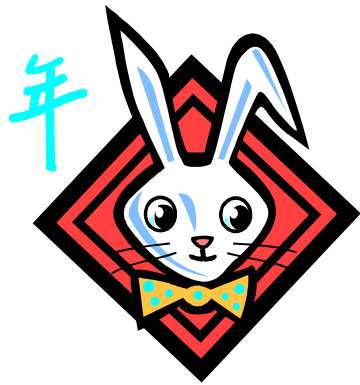
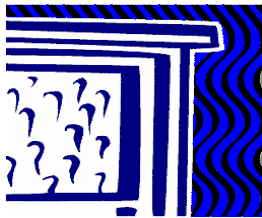
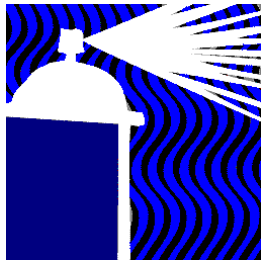


## Que estamos haciendo?

1. Relacion entre materia particulada y recursos naturales
2. Identificacion y caracterizacion de hongos
3. Concienciacion sobre asma – Tools for Schools
4. Avaluo de riesgo y modelo de participacion comunitaria

# Porque lo estamos haciendo?

## 1. Exacerbantes ambientales de asma





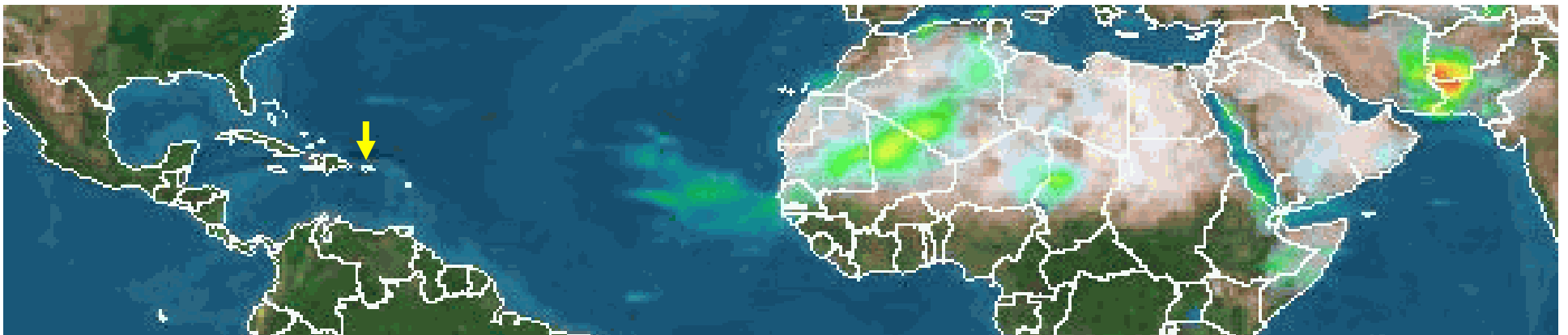
Porque lo estamos haciendo?

2. Características climaticas

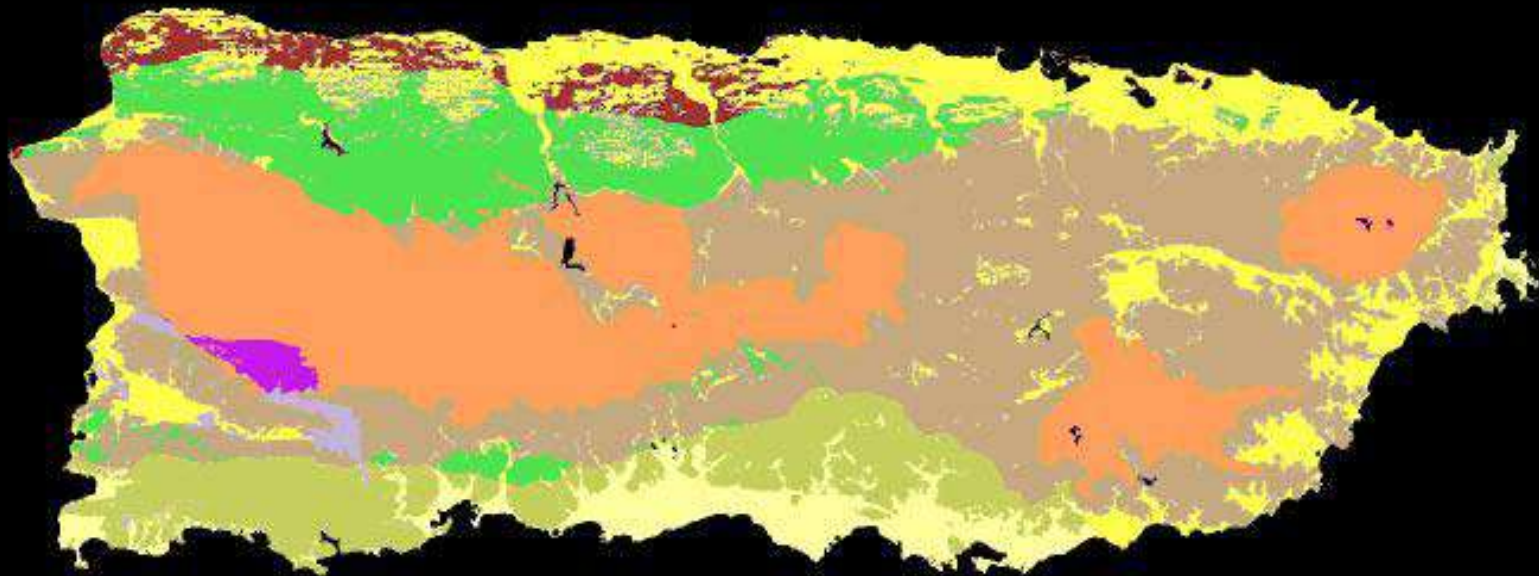
3. Patrones de viento

4. Geomorfologia

5. Desarrollo urbano



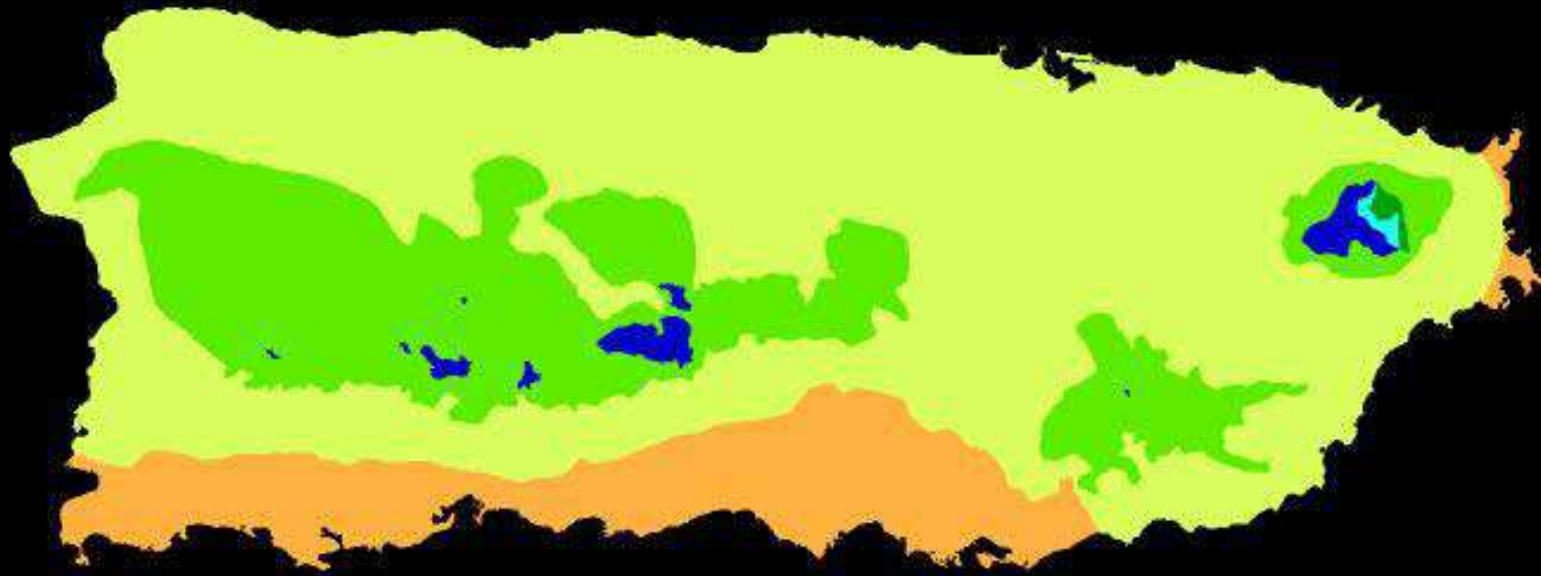
# Geoclimatic classification zones



- |  |  |
|--|--|
|  Alluvial-dry                 |  Limestone-moist, wet               |
|  Limestone, Volcanic, Sed-dry |  Volcanic, Sed-wet, lwr montane wet |
|  Alluvial-moist               |  Serpentine-wet, lwr montane wet    |
|  Serpentine-dry, moist        |  Limestone moist semideciduos       |
|  Volcanic, Sedimentary-moist  |  |

20 0 20 Kilometers

# Holdridge Lifezones



Subtropical dry forest

Subtropical moist forest

Subtropical wet forest

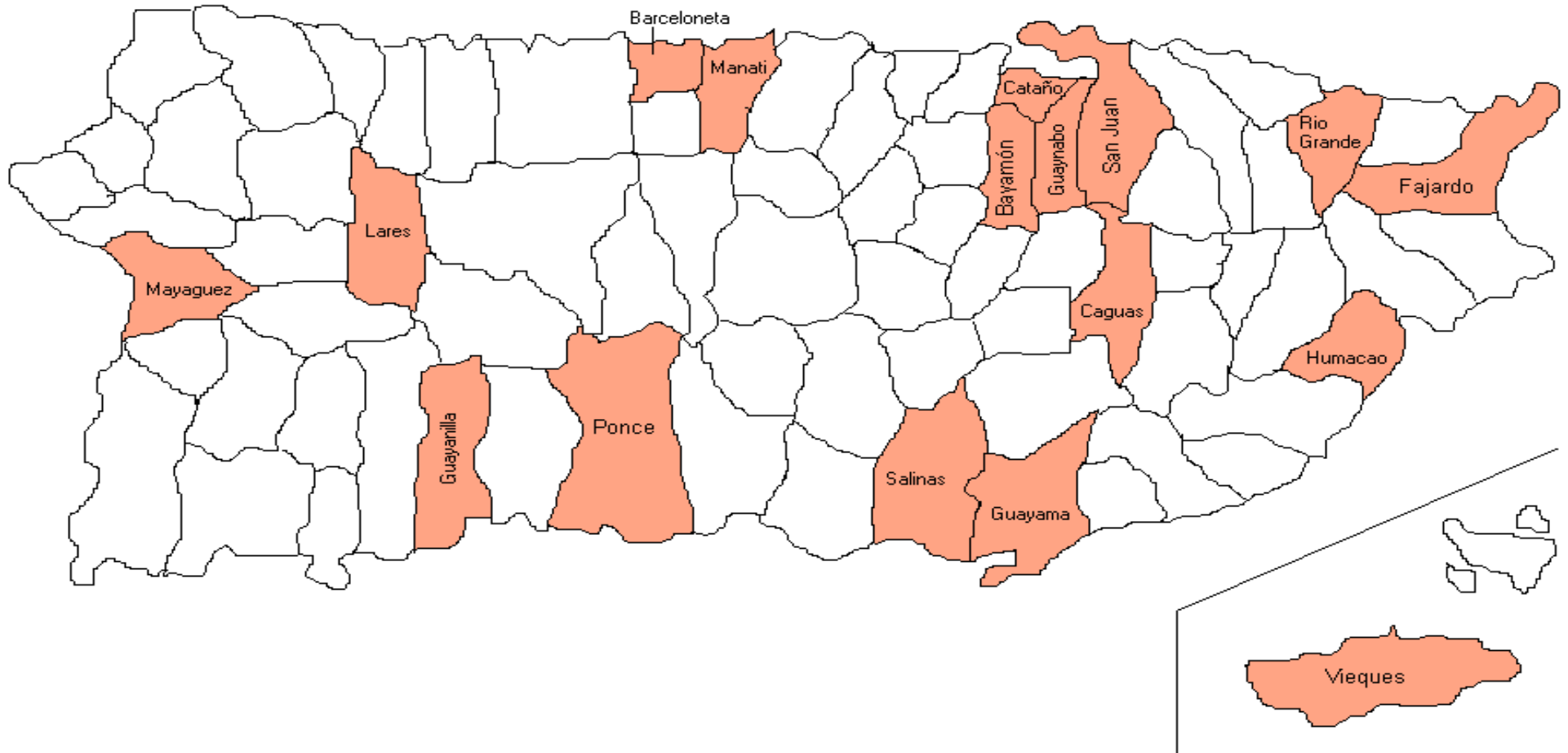
Subtropical rain forest

Lower montane wet forest

Lower montane rain forest

20 0 20 Kilometers

# RED DE MONITOREO DE AIRE JCA



# PAREMETROS DE CALIDAD DE AIRE NACIONALES (EU)

<b>Parametro</b>	<b>Rangos</b>
Carbon Monoxide	9ppm – 10 $\mu\text{g}/\text{m}^3$ (8 hr mean) 35ppm - 40 $\mu\text{g}/\text{m}^3$ (1 hr mean)
Nitrogen Dioxide	0.053ppm - 100 $\mu\text{g}/\text{m}^3$ (annual mean)
Sulfur Dioxide	0.03ppm – 80 $\mu\text{g}/\text{m}^3$ (annual mean) 0.14ppm – 365 $\mu\text{g}/\text{m}^3$ (24 hr mean) 0.5ppm – 1300 $\mu\text{g}/\text{m}^3$ (3 hr mean)
Ozone	0.12ppm – 235 $\mu\text{g}/\text{m}^3$ (1 hr mean) 0.08ppm - 157 $\mu\text{g}/\text{m}^3$ (8 hr mean)
Lead	1.5 $\mu\text{g}/\text{m}^3$ (trimester mean)
<b>PM 10</b>	50 $\mu\text{g}/\text{m}^3$ (annual mean) 150 $\mu\text{g}/\text{m}^3$ (24 hr mean)
<b>PM 2.5</b>	15 $\mu\text{g}/\text{m}^3$ (annual mean) 65 $\mu\text{g}/\text{m}^3$ (24 hr mean)

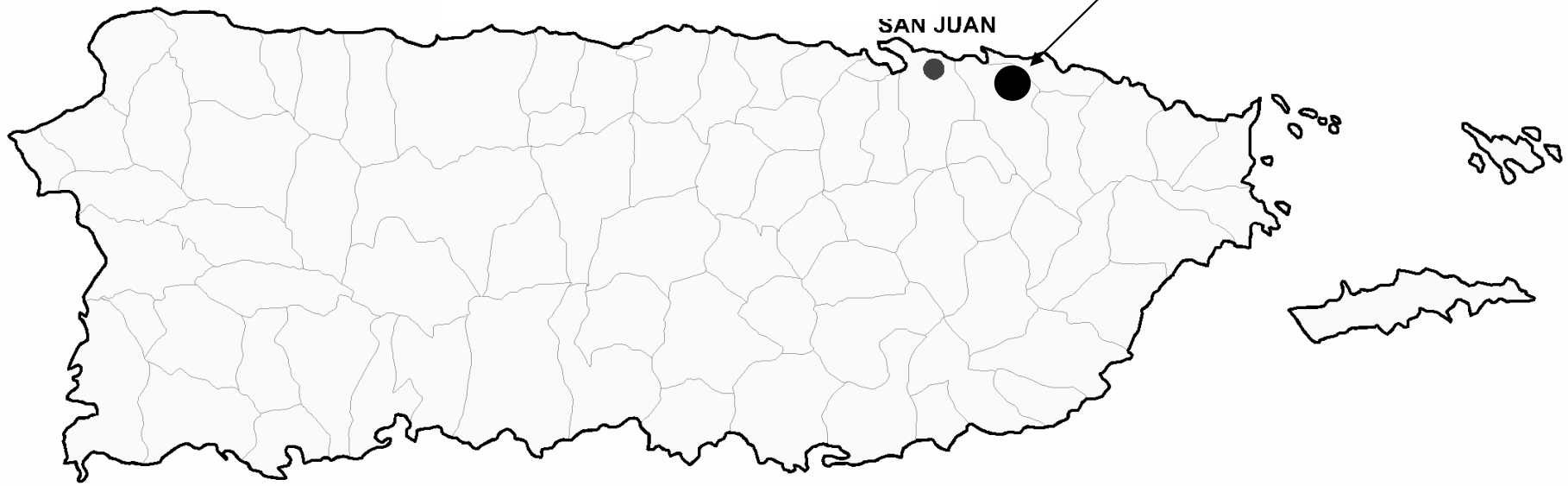
## Porque Caguas?

1. Ubicacion y localizacion de la universidad - acceso
2. Municipalidad bien descrita usando SIG
3. Poblacion: 141,693 (2000, Censo EU)
4. Prevalencia de asma 0-17: 21.23

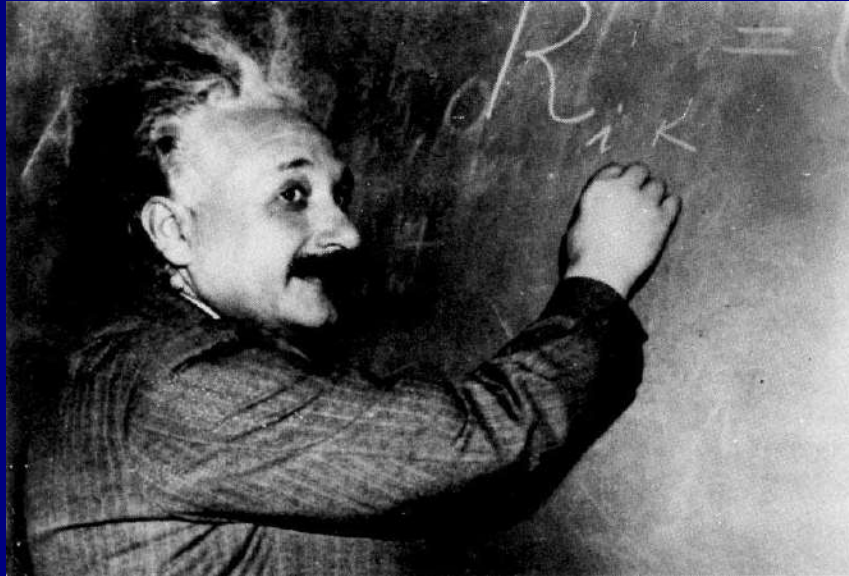
**Oceano Atlantico**

**Carolina**

SAN JUAN



**Mar Caribe**



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Interdisciplinary Research Institute