*Training/Workshop on*

*Tsunami Evacuation Maps, Plans, and Procedures and the UNESCO-IOC Tsunami Ready Recognition Programme for the Indian Ocean Member States*

*Hyderabad - India, 15-23 April 2025*

# Tsunami Inundation Modelling and Map

## *TIMM:* Tsunami Inundation and Hazard-Creating Inundation Maps for Evacuation Planning

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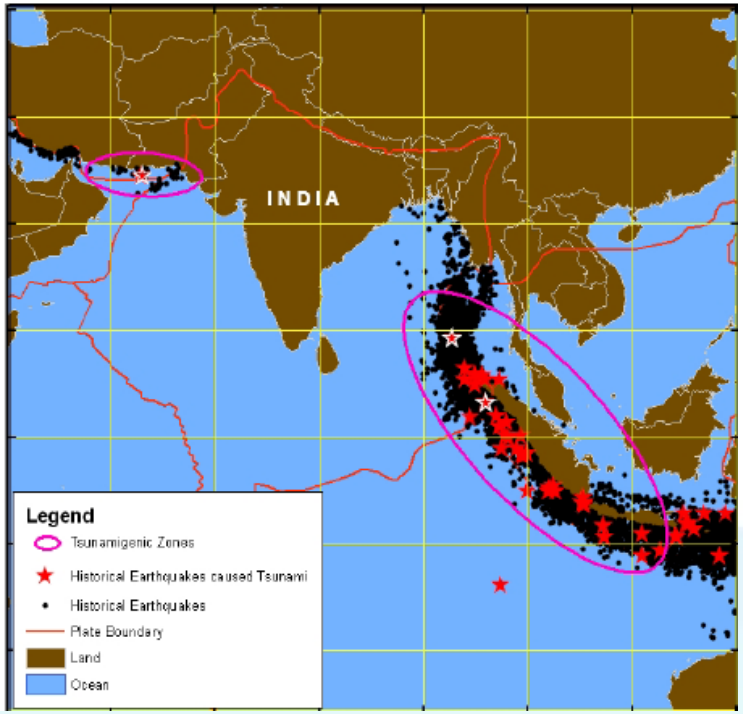
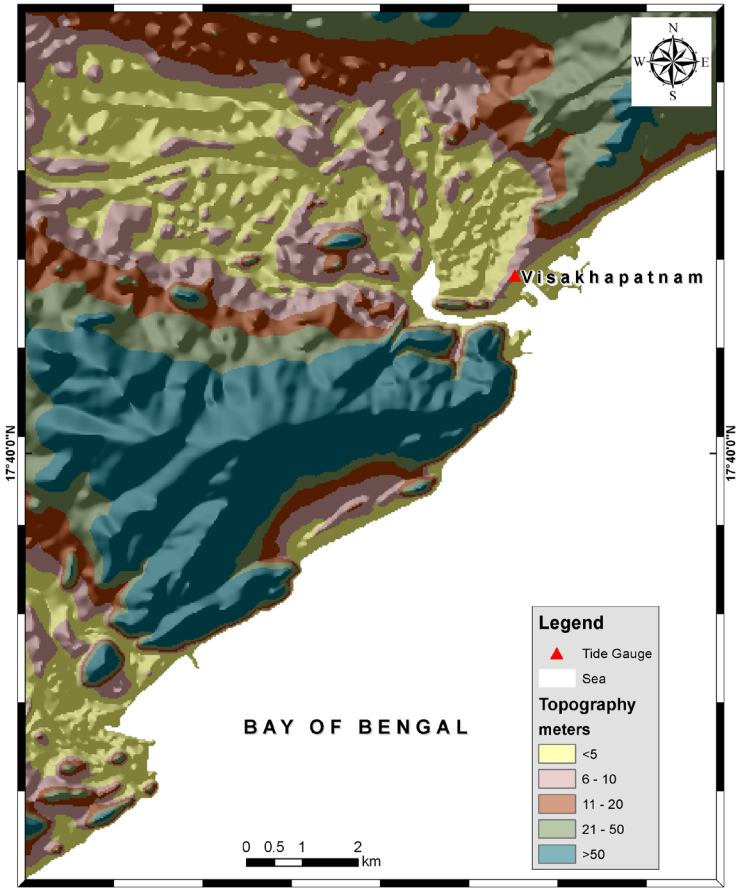
# Introduction

- Brief overview of tsunamis
- Importance of preparedness
- Purpose of inundation maps

## What is Tsunami Inundation?

- Definition: Inland flooding caused by tsunami waves
- Factors influencing inundation:
  - Wave height
  - Coastal topography
  - Bathymetry
  - Source distance

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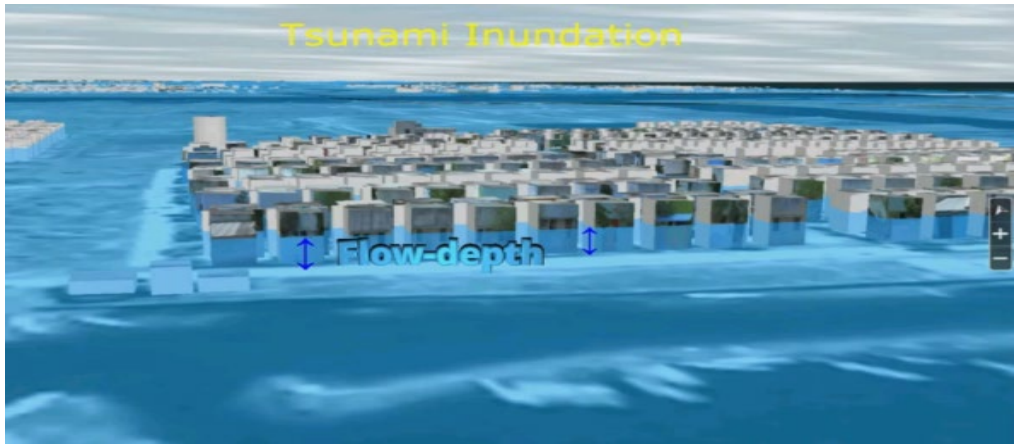
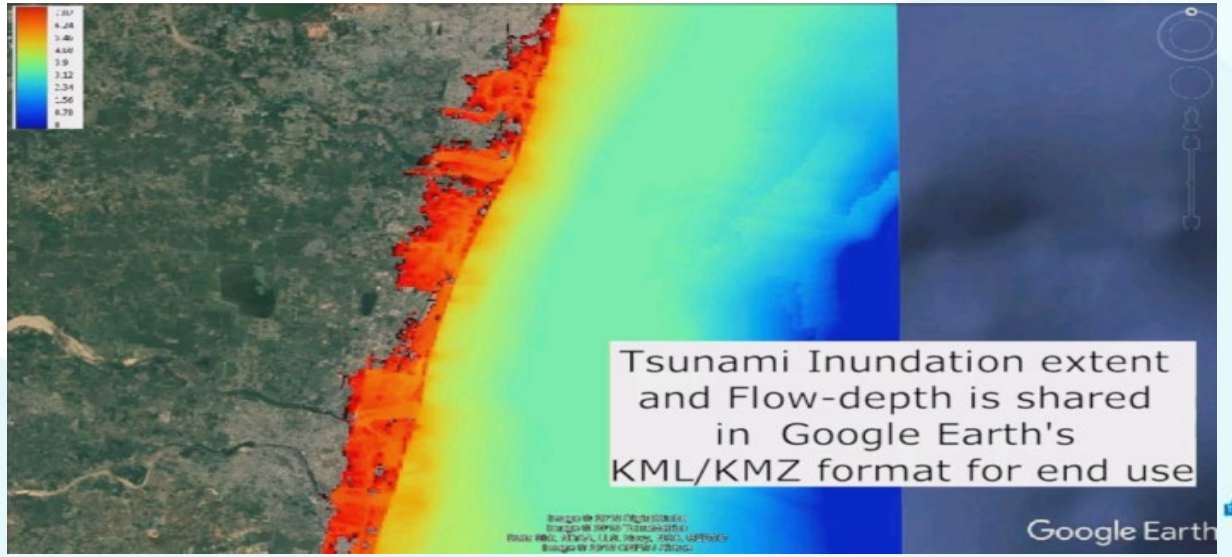
**Tsunami Hazards**

- Physical damage
- Human casualties
- Infrastructure disruption

Environmental impact

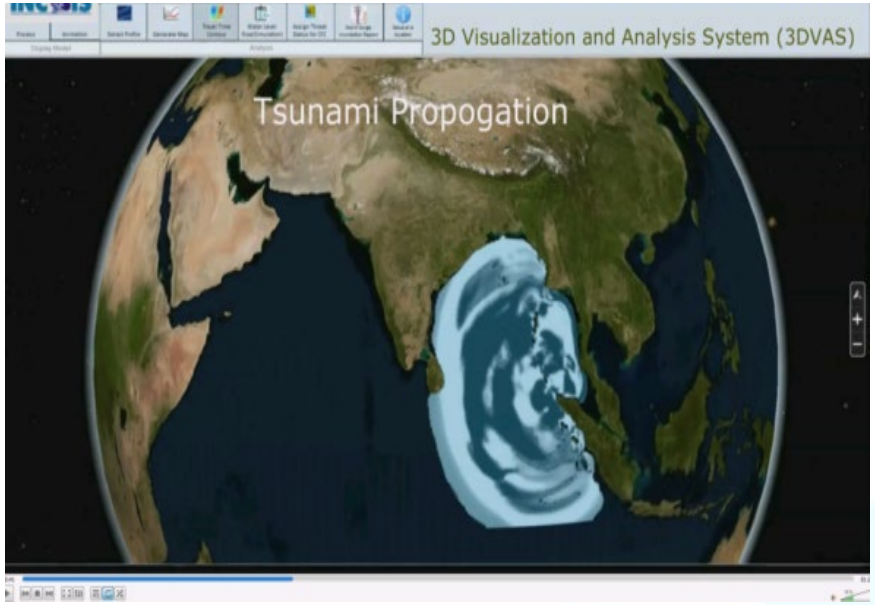




## Importance of Inundation Maps

- Visual representation of flood-prone zones
- Supports evacuation planning
- Helps in urban and coastal development




## How Inundation Maps Are Created

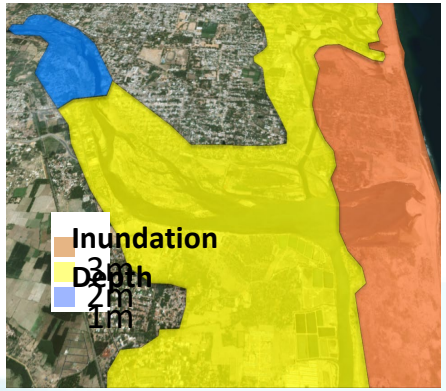
- Tsunami modeling (numerical simulations)
- Historical data and geological evidence
- Topographic and bathymetric data
- Scenario analysis (e.g., worst-case)

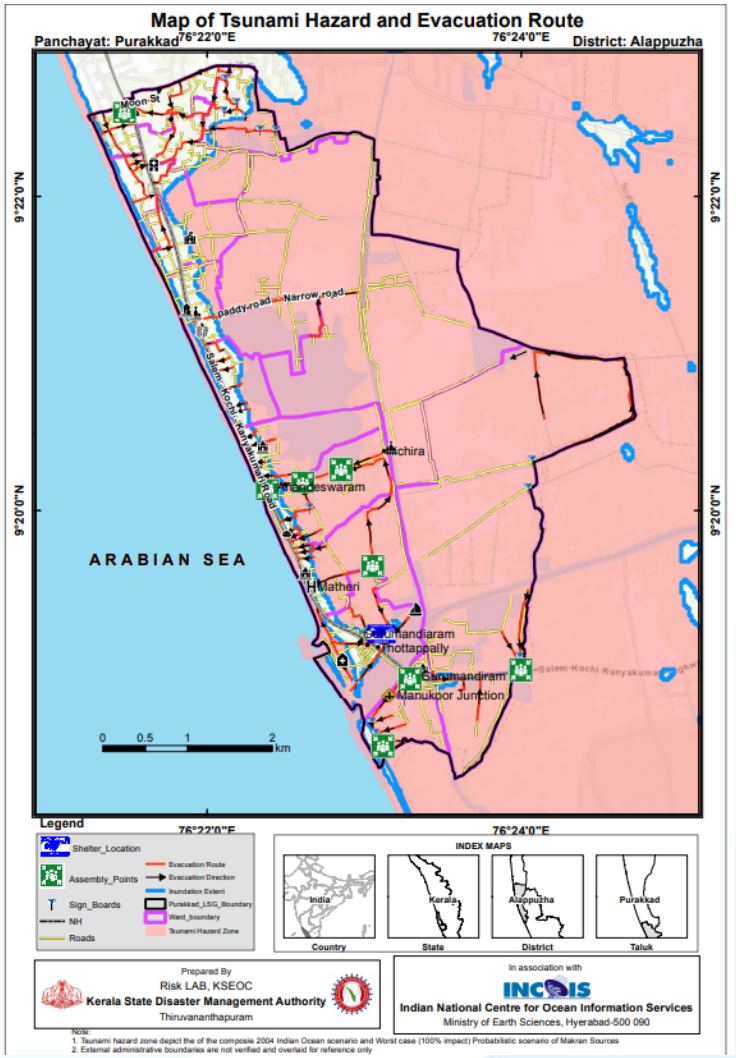
# Types of Tsunami Maps

- Inundation Maps
- Evacuation Maps
- Hazard Zonation Maps

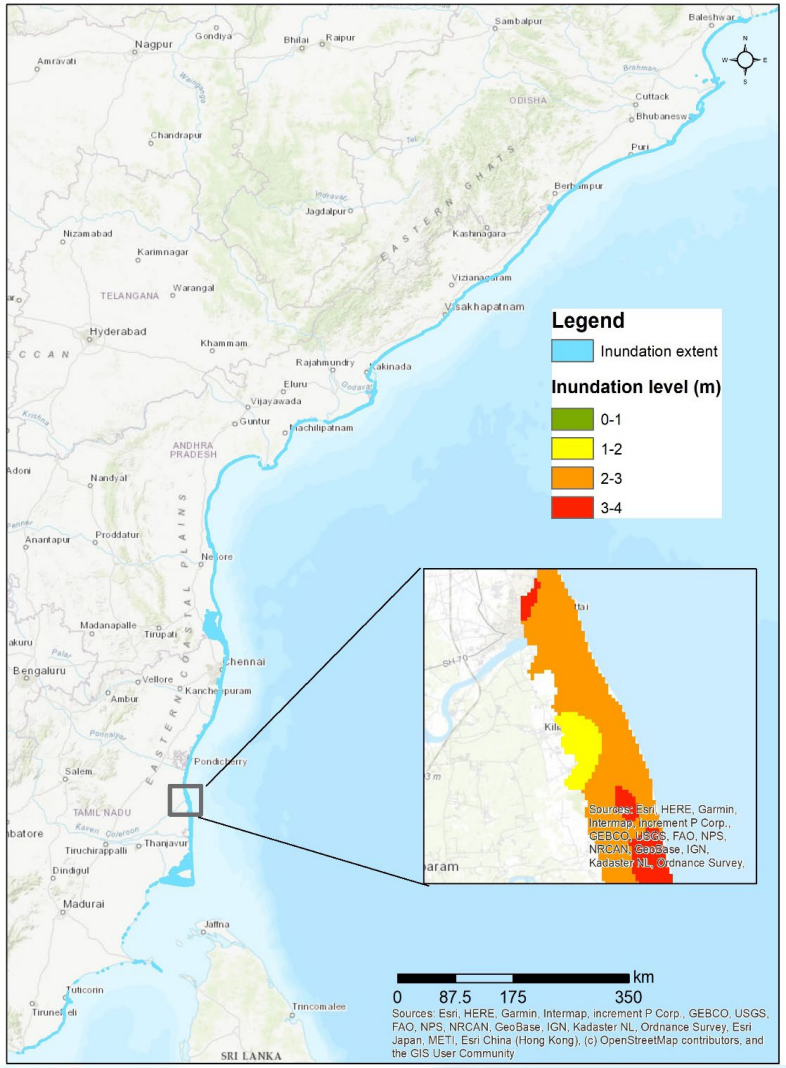
## Interpreting a Tsunami Inundation Map

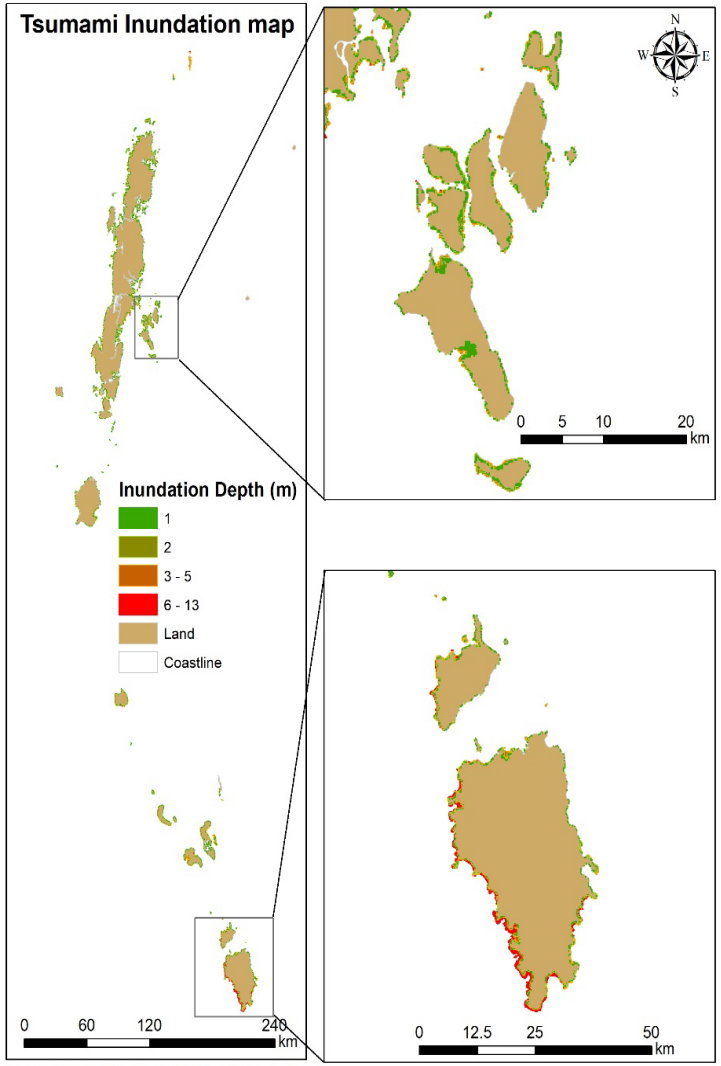
- Legend/key (elevation zones, flood depths)
- Evacuation routes
- Safe zones and shelters



# Case Study Example

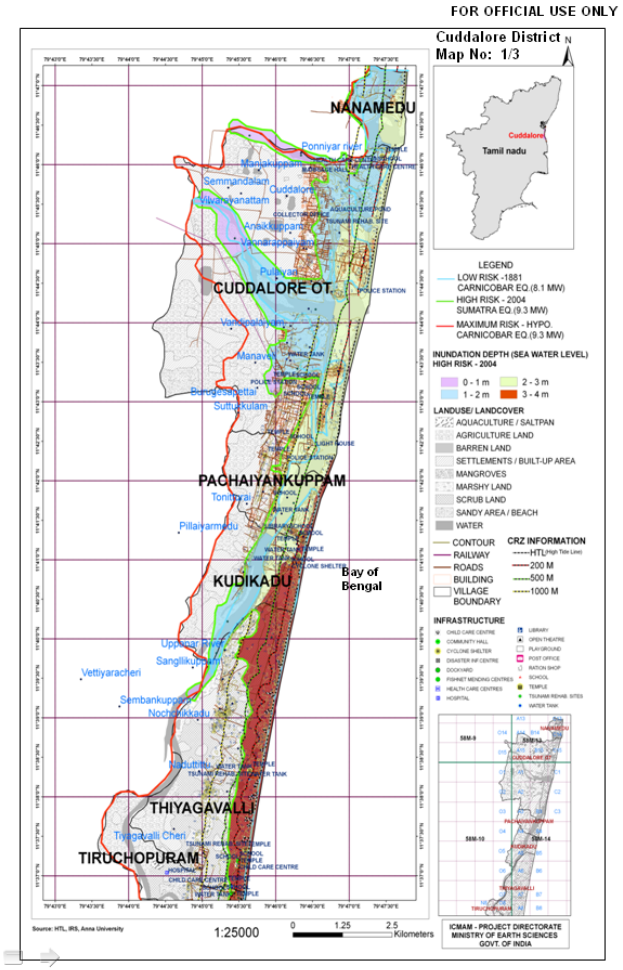



Scenario: December 26, 2004 Indian Ocean Tsunami

Source of Topograpghy: ALTM+TerrasarX

## Tsunami Vulnerability Map of Cuddalore, Tamil Nadu

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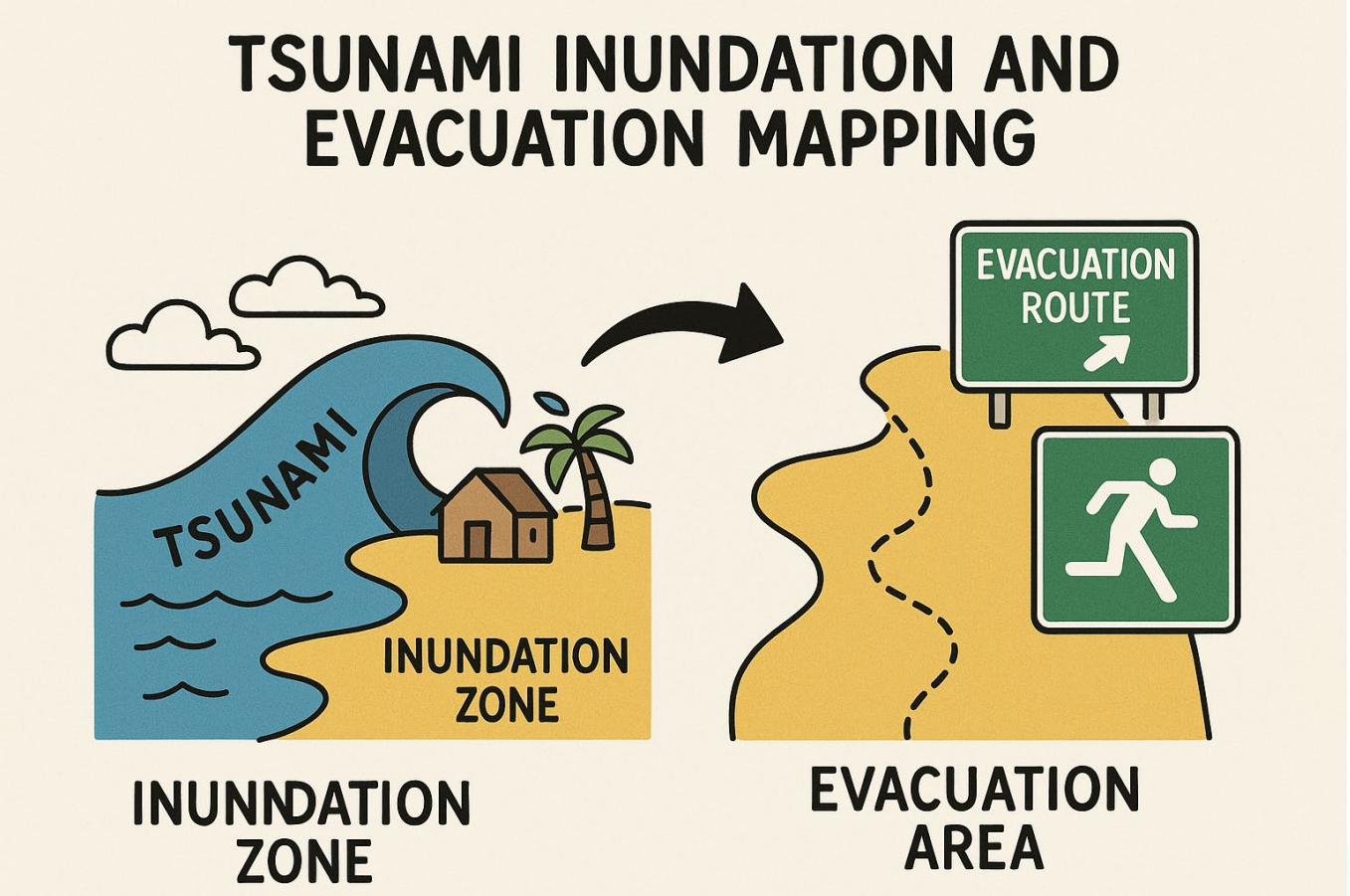
## Challenges in Creating Accurate Maps

- Limited data in some areas
- Climate change impacts
- Land use changes
- Public understanding and trust

## Role in Emergency Planning

- Government and community use
- Simulation drills
- Integration with early warning systems

# Thank you


TSUNAMI INUNDATION AND EVACUATION MAPPING
TSUNAMI
INUNDATION ZONE
EVACUATION ROUTE
INUNNDATION ZONE
EVACUATION AREA