

*Maritime Geographic  
Information Systems for  
Honduras and Nicaragua*

**Phase III - Port Damage Assessment of Port  
Infrastructure Damage Caused by Hurricane  
Mitch, a Technology Transfer and Training  
Program**



*Puerto Cortés*

*Port of Castilla*

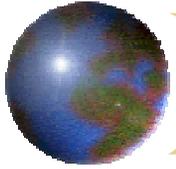
**Honduras**

*Port of Cabezas*

*Port of San Lorenzo*

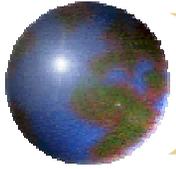
**Nicaragua**

*Port of Corinto*



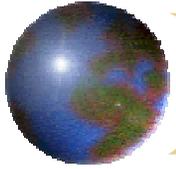
## *Background*

- 1998 - Central America suffers Hurricane Mitch
- 1999 - Emergency Appropriations Act
  - Money awarded to US Agency for International Development (USAID)
  - USAID awards funds to the Department of Transportation
- MARAD performs port damage assessments
  - Recommends GIS technology for Honduras and Nicaragua
- MARAD and BTS see opportunity to collaborate on GIS project



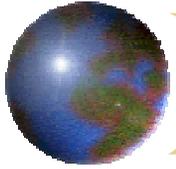
## *Introduction*

- The U.S. Maritime Administration, Bureau of Transportation Statistics, and the Pan American Institute sponsored a technology transfer and training program in Honduras and Nicaragua
- BTS staff provided instruction on how to use Geographic Information System (GIS) to depict maritime commodity flow data and information in a GIS mapping environment.



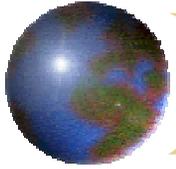
## *Project Goals*

- Demonstrate how a GIS can be used to facilitate analysis and ease understanding of maritime trade patterns.
- Develop an application that shows global trade patterns.
- Demonstrate the maritime data needed for spatial analysis is readily available and accurate.



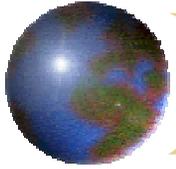
## *Project Goals*

- Demonstrate that existing maritime data can be easily incorporated into a GIS.
- Develop applications that demonstrate the spatial analysis capabilities of GIS
- Exchange GIS technology and knowledge with Honduran and Nicaraguan professionals



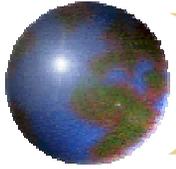
## *Discussion Objectives*

- Provide an understanding of what functions the Commodity Flow application performs
- Provide an understanding how the application works
- Supply a forum for discussing Geographic Information Systems Technology



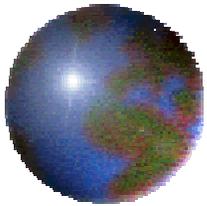
## *Loading the project...*

- This is an ArcView project file. ArcView 3.2a must be installed for it to work
- Place the CD into the CD ROM drive
- Open Windows Explorer and find the MaritimeGIS Folder
- Copy the MaritimeGIS folder to your computer
- Change the folder and file properties from read only to read/write



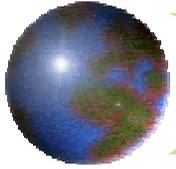
## *Opening the project...*

- Double click the project file
- OR -
- Launch ArcView
- Choose Open an Existing Project
- Find the project file and select it



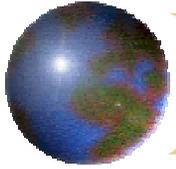
# *Commodity Flow Mapping Application*

Starting a Maritime GIS...



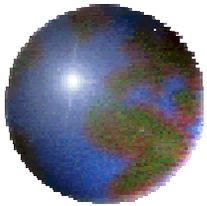
## *MARAD/BTS Collaboration Goals*

- z Demonstrate how a GIS can be used to facilitate analysis and ease understanding of maritime trade patterns.
- z Develop applications that show global trade patterns as well as western hemispheric trade patterns.
- z Demonstrate the maritime data needed for spatial analysis is readily available and accurate



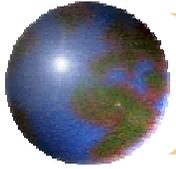
## *MARAD/BTS Collaboration Goals*

- z Demonstrate that existing maritime data can be easily incorporated into a GIS.
- z Develop applications that demonstrate the spatial analysis capabilities of GIS.
- z Transfer GIS technology and knowledge to Honduras and Nicaragua



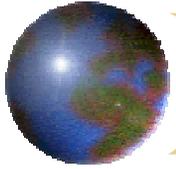
# *Commodity Flow Mapping Application*

What it does...



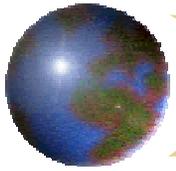
## *What it does ...*

- The application provides a graphic representation of the commodity movement between commercial ports.
- The user employs a graphic user interface (GUI) to identify the commodity data they want mapped
- The GUI enables the user to pinpoint the shipment data that is most important to them.



## *What it does...*

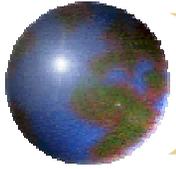
- Using the Commodity Flow Diagram
  - Launch the application by
    - Selecting Commodity Flow from the Maritime IS menu
  - OR -
  - Pressing the "M" button



## *What it does...*

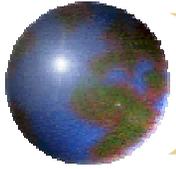
- ArcView Responds by displaying the Commodity Flow Wizard





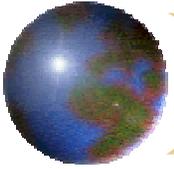
## *What it does...*

- **Selecting a Hub Port**
  - Retrieve ports list by clicking the Ports Radio Button
  - Highlight the ports in which you are interested
  - Click the ">" button
  - Click the Next Button



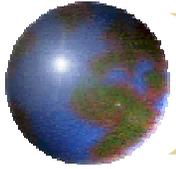
## *What it does...*

- **Selecting a Date Range**
  - Enter the date range in which you are interested.
  - The dates must be between the dates listed in the Legitimate Date label.
  - Dates must be entered in the mm/dd/yyyy format.
  - Dates are inclusive.
  - When the dates are entered press the Next button.



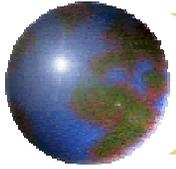
## *What it does...*

- **Selecting Commodities**
  - When the dialog opens, the commodities fill the Available list box on the left.
  - Choose the commodities in which you are interested by clicking on the commodities in the list box.
  - Move the chosen commodities from the Available list box to the Selected list box by pressing the “>” button.
  - When the selection is complete, press the next button.



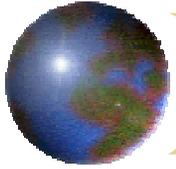
## *What it does...*

- **Selecting Import Ports**
  - Retrieve a list of available ports by selecting the Ports radio button.
  - The Available ports fill the list box on the left.
  - Choose the ports in which you are interested by clicking on the ports in the available list box.
  - When the selection is complete, press the next button.



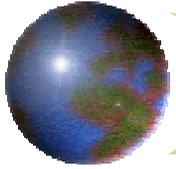
## *What it does ...*

- **Selecting Export Ports**
  - Retrieve a list of available ports by selecting the Ports radio button.
  - The Available ports fill the list box on the left.
  - Choose the ports in which you are interested by clicking on the ports in the available list box.
  - When the selection is complete, press the finish button.



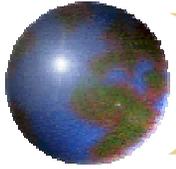
## *What it does...*

- After clicking the finish button the application maps the data selected by the user.
- A few tools have been included to help the user understand the data better.



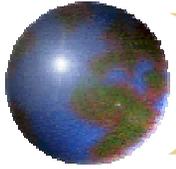
## *What it does...*

- Map Buttons
  - Refresh Labels
    - Clicking this button will force a redraw of labels for the Ports theme



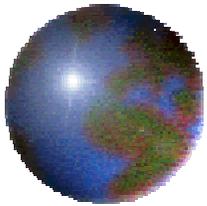
## *What it does...*

- Map Buttons
  - View Charts
    - This tool is used to generate charts of imports and exports by commodity for the selected ports
    - While the Commodity Flow view is active press the View Charts Button
    - Then move the cursor over a Hub or Spoke port and left mouse click
    - Charts that depict the type and amount of commodities shipped are displayed



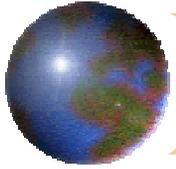
## *What it does...*

- Chart Buttons
  - View Key
    - The charts displayed encode the commodities because of space limitations
    - The view key button displays the commodity list so the user can interpret the codes



# *Commodity Flow Mapping Application*

Where are we going...



*To establish a GIS capability in Central America to conduct transportation policy and planning and respond to man-made and natural disasters*

- Port, Highway, Emergency professionals were trained in GIS for comprehensive multi-modal planning and policy purposes
- Port, Highway, Emergency professionals were trained in Honduras and Nicaragua to use GIS mapping as a tool to respond emergencies.