

High Tide Flooding Data Quality Analysis - puerto_rico

Analysis generated on: 2025-02-10 13:58:12

Overview

Analysis of high tide flooding data from 1920 to 2024.

Key Statistics

- Total records analyzed: 210
- Average flood days per year (excluding missing data): 0.05
- Overall data completeness: 40.5%

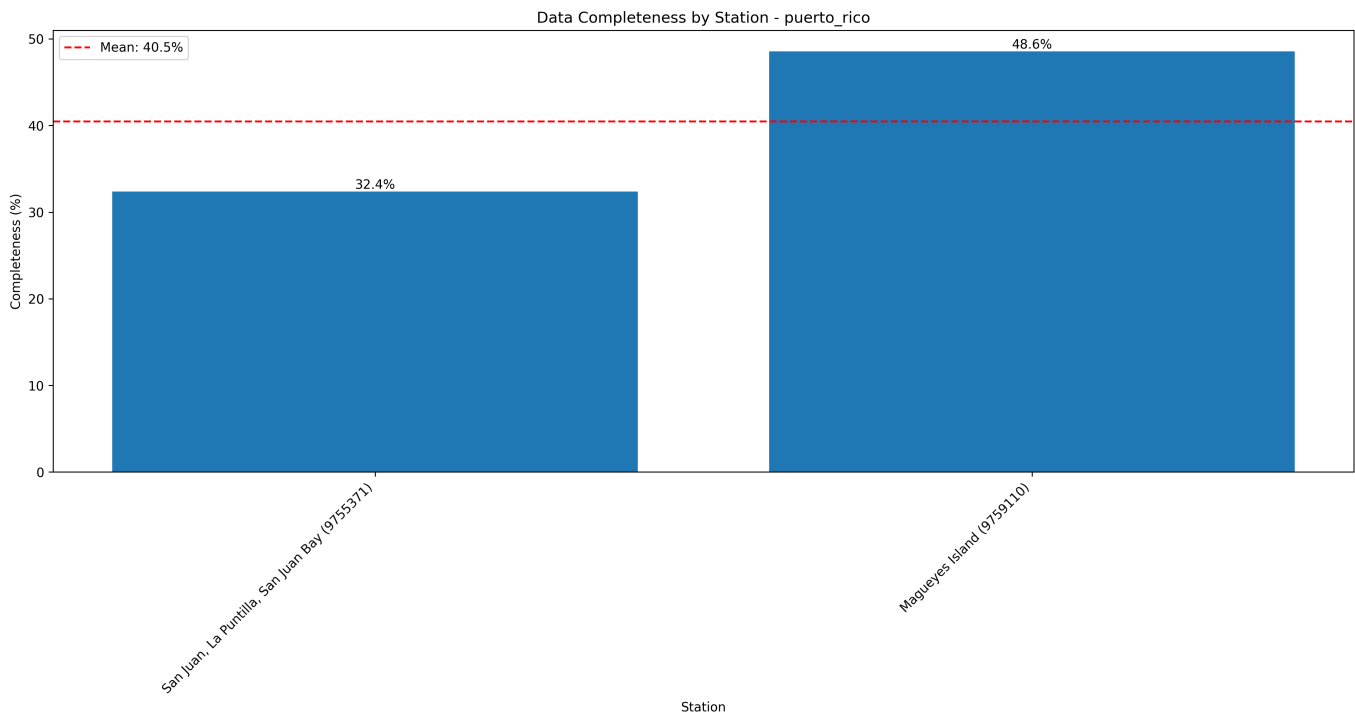
Monitoring Stations

Station ID	Name	Location	Sub-Region	Data Completeness
9752235	Culebra	18.30°N, 65.30°W	East	0.0%
9752621	Isabel Segunda, Vieques Island	18.15°N, 65.44°W	East	0.0%
9752695	Esperanza, Vieques Island	18.09°N, 65.47°W	East	0.0%
9753216	Fajardo	18.34°N, 65.63°W	East	0.0%
9754229	Yabucoa Harbor	18.06°N, 65.83°W	East	0.0%
9755371	San Juan, La Puntilla, San Juan Bay	18.46°N, 66.12°W	North	32.4%
9757811	Arecibo	18.48°N, 66.70°W	North	0.0%
9755968	Salinas, Bahia de Jobos	17.95°N, 66.23°W	South	0.0%
9758066	Guayanilla, Bahia de Guayanilla	18.01°N, 66.77°W	South	0.0%
9759110	Magueyes Island	17.97°N, 67.05°W	South	48.6%
9759394	Mayaguez	18.22°N, 67.16°W	West	0.0%

Station ID	Name	Location	Sub-Region	Data Completeness
9759413	Aguadilla, Crashboat Beach	18.46°N, 67.16°W	West	0.0%
9759938	Mona Island	18.09°N, 67.94°W	Offshore	0.0%

Data Quality Analysis

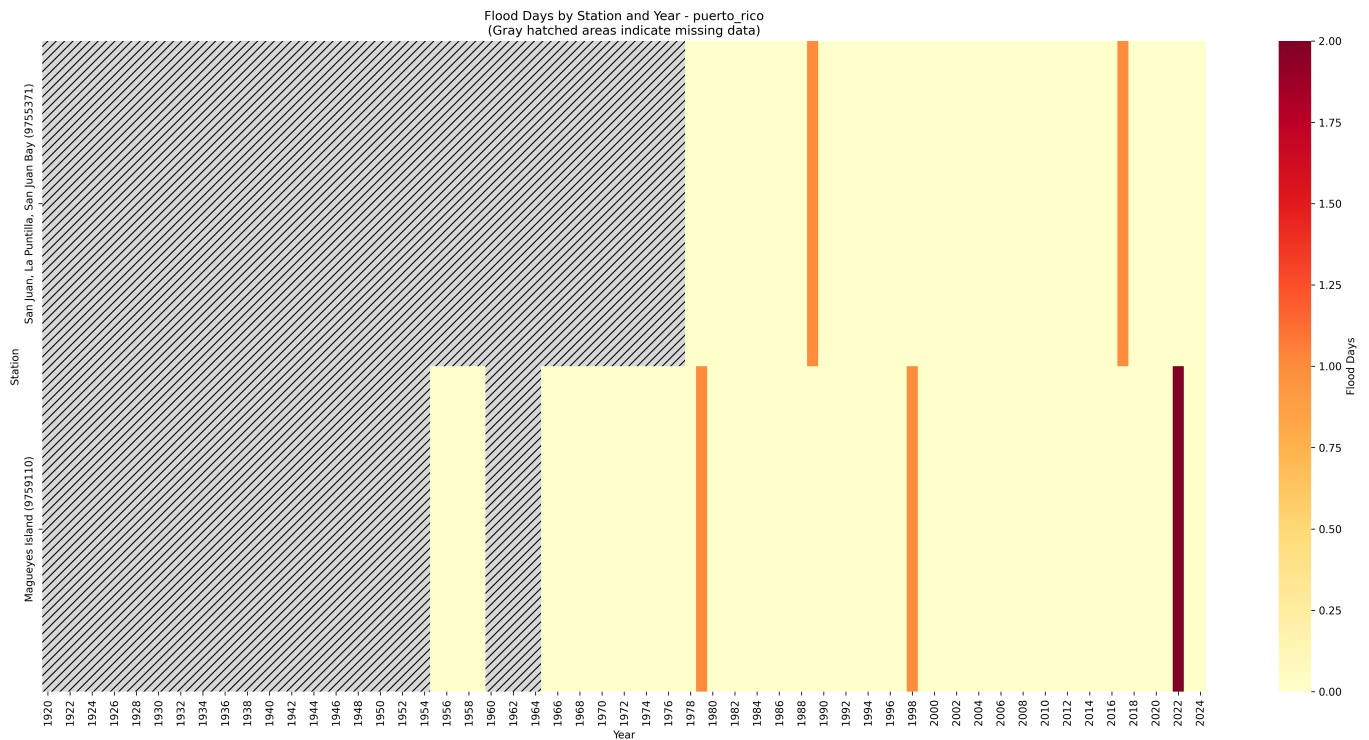
Data Completeness by Station



This visualization shows the percentage of days with valid data for each station:

- Stations are ordered by completeness percentage
- The red line indicates the regional mean completeness
- Regional mean completeness: 40.5%

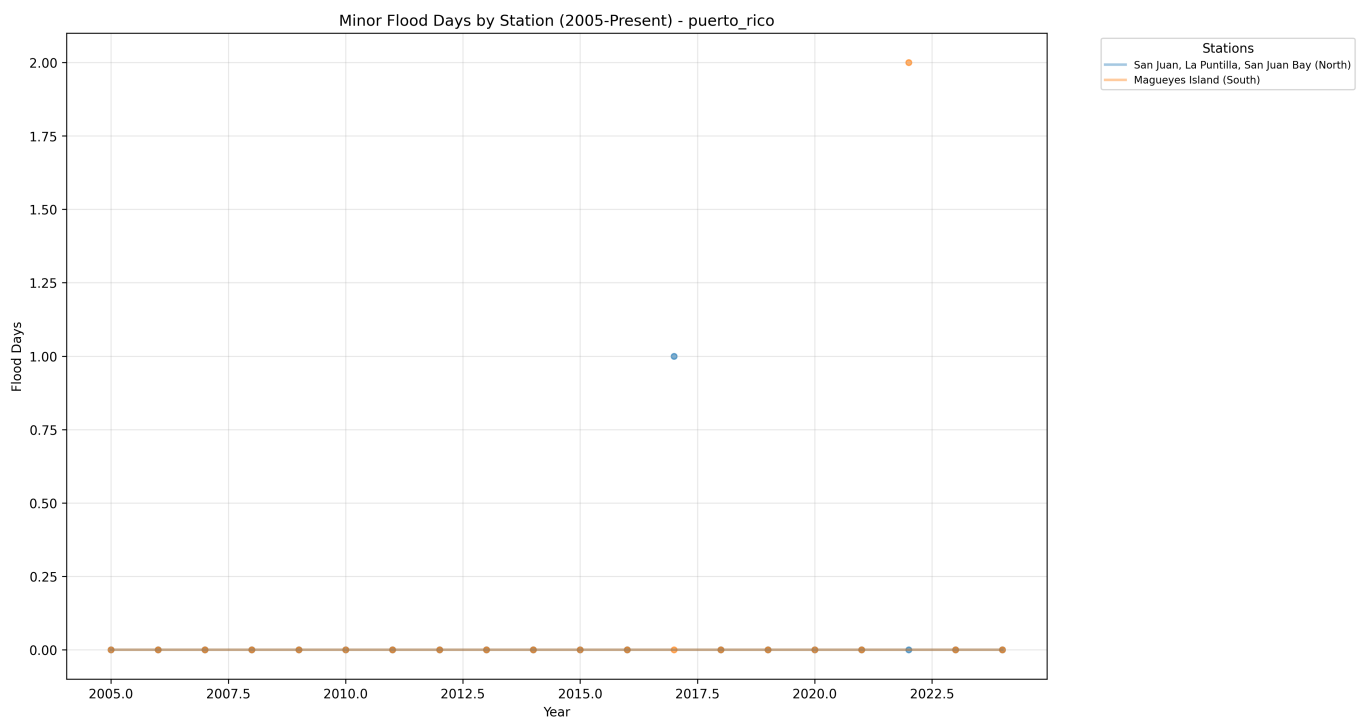
Flood Days Distribution



This heatmap shows the distribution of flood days across stations and years:

- Color intensity indicates number of flood days
- Gray hatched areas indicate missing data (>180 days missing in that year)
- White indicates zero flood days with complete data

Recent Flooding Trends (2005-Present)



This plot shows the trend in minor flood days for each station since 2005:

- Each line represents a different monitoring station
- Points indicate actual measurements

- Gaps in lines indicate missing data

Key Findings

Most Complete Records

- Magueyes Island (South, Station 9759110): 48.6% complete
- San Juan, La Puntilla, San Juan Bay (North, Station 9755371): 32.4% complete

Highest Flooding Activity

- Magueyes Island (South, Station 9759110): 0.06 flood days per year
- San Juan, La Puntilla, San Juan Bay (North, Station 9755371): 0.03 flood days per year