

High Tide Flooding Data Quality Analysis - gulf_coast

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Overview

Analysis of high tide flooding data from 1920 to 2024.

Key Statistics

- Total records analyzed: 2100
- Average flood days per year (excluding missing data): 2.54
- Overall data completeness: 37.0%

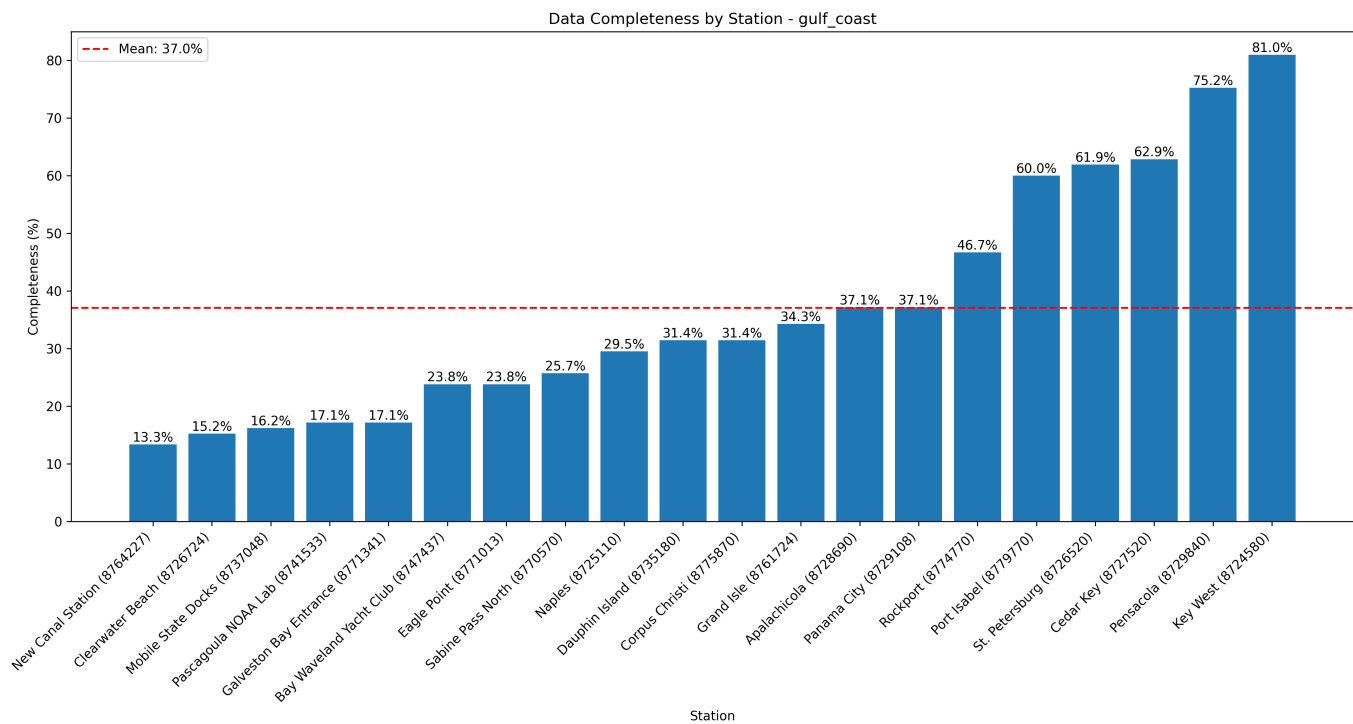
Monitoring Stations

Station ID	Name	Location	Sub-Region	Data Completeness
8724580	Key West	24.55°N, 81.81°W	florida_gulf	81.0%
8725110	Naples	26.13°N, 81.81°W	florida_gulf	29.5%
8726520	St. Petersburg	27.76°N, 82.63°W	florida_gulf	61.9%
8726724	Clearwater Beach	27.98°N, 82.83°W	florida_gulf	15.2%
8727520	Cedar Key	29.14°N, 83.03°W	florida_gulf	62.9%
8728690	Apalachicola	29.73°N, 84.98°W	florida_gulf	37.1%
8729108	Panama City	30.15°N, 85.67°W	florida_gulf	37.1%
8729840	Pensacola	30.40°N, 87.21°W	florida_gulf	75.2%
8735180	Dauphin Island	30.25°N, 88.08°W	alabama	31.4%
8737048	Mobile State Docks	30.70°N, 88.04°W	alabama	16.2%
8741533	Pascagoula NOAA Lab	30.37°N, 88.56°W	mississippi	17.1%
8747437	Bay Waveland Yacht Club	30.33°N, 89.33°W	mississippi	23.8%
8760721	Pilottown	29.18°N, 89.26°W	louisiana	0.0%
8761724	Grand Isle	29.26°N, 89.96°W	louisiana	34.3%
8764227	New Canal Station	30.03°N, 90.11°W	louisiana	13.3%
8770570	Sabine Pass North	29.73°N, 93.87°W	Unknown	25.7%
8771013	Eagle Point	29.48°N, 94.92°W	texas	23.8%
8771341	Galveston Bay Entrance	29.36°N, 94.72°W	texas	17.1%
8772447	Freeport	28.94°N, 95.30°W	texas	0.0%

Station ID	Name	Location	Sub-Region	Data Completeness
8774770	Rockport	28.02°N, 97.05°W	texas	46.7%
8775870	Corpus Christi	27.58°N, 97.22°W	texas	31.4%
8779770	Port Isabel	26.06°N, 97.22°W	texas	60.0%

Data Quality Analysis

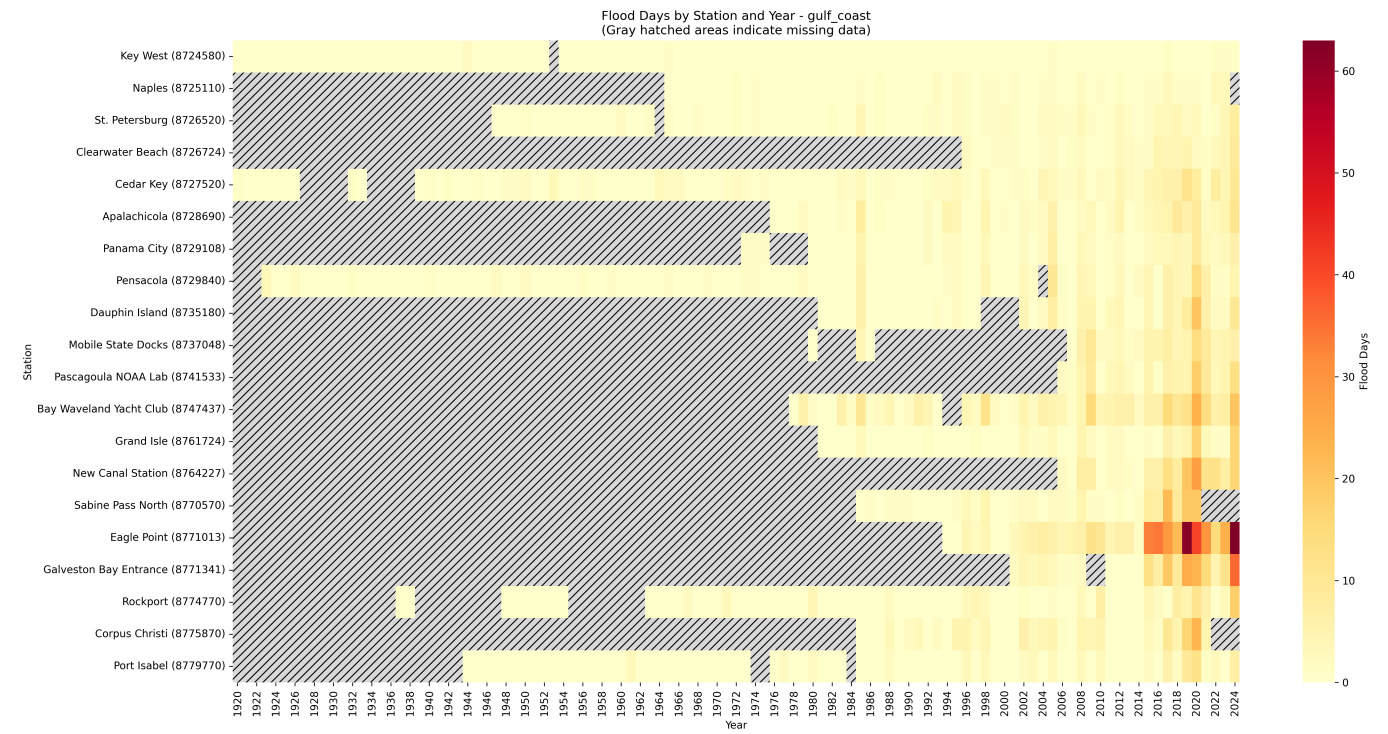
Data Completeness by Station



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: 37.0%

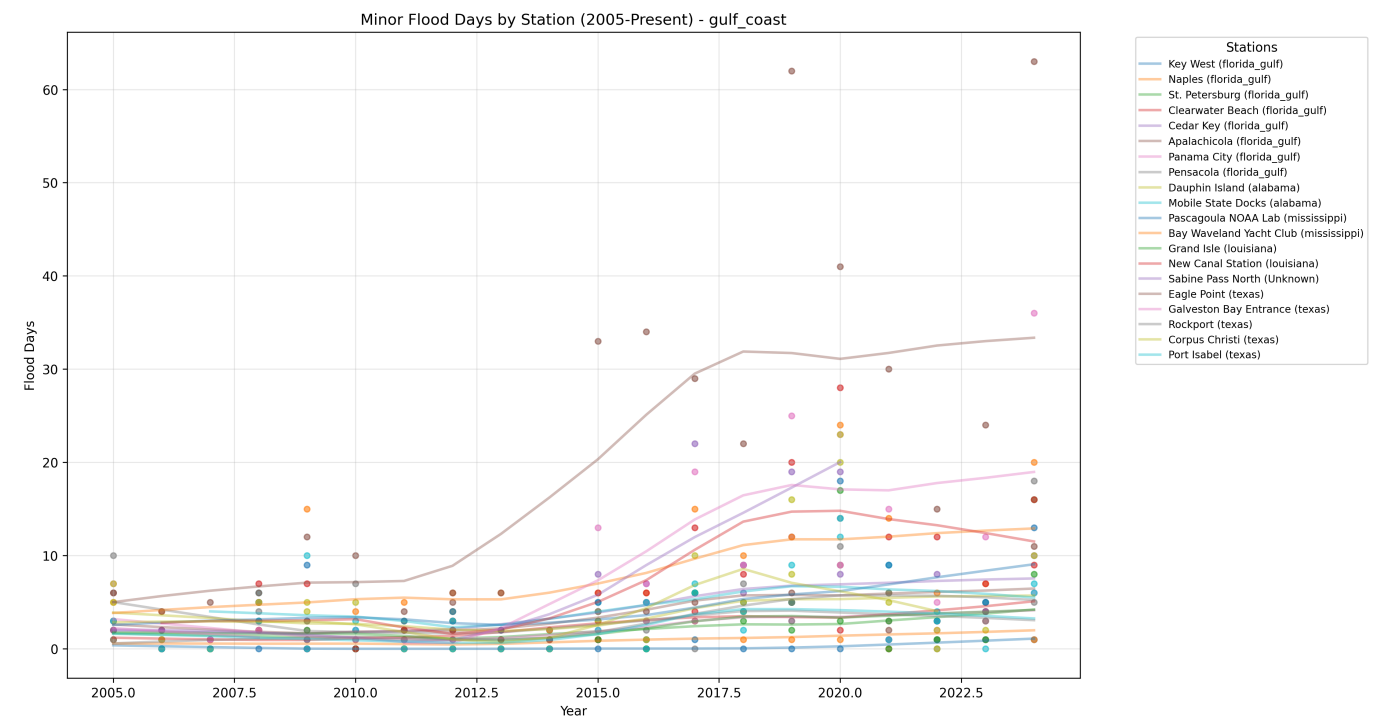
Flood Days Distribution



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

- Key West (florida_gulf, Station 8724580): 81.0% complete
- Pensacola (florida_gulf, Station 8729840): 75.2% complete
- Cedar Key (florida_gulf, Station 8727520): 62.9% complete

Highest Flooding Activity

- Eagle Point (texas, Station 8771013): 14.20 flood days per year
- Galveston Bay Entrance (texas, Station 8771341): 10.00 flood days per year
- New Canal Station (louisiana, Station 8764227): 9.43 flood days per year