Frequently asked question: Occasionally I see the astronomic tide (blue line) rising above the level marked HAT83 in your Tidewatch graphs. If HAT stands for 'highest astronomic tide', how is that possible? And what does '83' stand for?

Answer: The daily rise and fall of astronomic tides are caused by gravity of the earth, moon and sun acting on the earth's oceans. Imagine dropping a stone into a pond. The ripples that spread out over the still water of the pond are like the tides riding on the surface of the ocean – or the seas and bays it connects to. But just as the still water level in the pond can change with time (during a drought or after a heavy rain), the surface of the ocean – sea level – also changes and the tidal "ripples" must move with it, up or down, when it does. This "reality" poses a problem when someone attempts to predict tidal heights up to a year ahead because we don't really know where sea level will be in future time. NOAA, the federal agency in charge of U.S. tidal datums, solves the problem by calculating an average sea level based on past observations: presently, mean sea level (MSL) from 1983 through 2001. Tidewatch is concerned with the display of water levels in real time, not future time, so we use a dynamic measure a little closer to reality, a *running mean* of sea level averaged over the past 30 days (m30) as our reference for the astronomic tide. To distinguish our astronomic tides from the highest predicted tide over 1983-2001, we've added the number 83 after HAT.