

Dr. Pierre Francus  
Handling Editor

November 5, 2023

Corrections for 'A major midlatitude hurricane in the Little Ice Age'

Dear Dr. Francus,

I am pleased to be able to submit a revised manuscript for consideration. Below are the recommended corrections and edits from your marked up copy as well as my own marked up and revised paper that include your suggestions. There was some minor editing in the discussion and conclusions surrounding the focus on temperature gradient versus westerlies.

Line 30-33	Removed
Line 49	Supplemental Tables of (1) fleet strength for both British and French forces and (2) ship of the line specifications including ordnance for both Invincible (GBR) and Le Tonnant (FR) as examples of sailing battleships. These two were selected since both are mentioned in the paper
Line 62	Change made
Line 109	edited to state this work was done by the lead author and an excerpt of the Master's log of HMS Sunderland during the storm along with its translation from longhand and the process required to access pertinent dates from ship logs (none of the logs used in this study were in digital format)
Line 205-208	readers redirected to relevant figures as requested
Line 216-219	Removed. The section about relocating the wreck was retained since the site was not publicly known
Line 265	Trouet et al. (2013) added and described
Line 334	brief explanation added
Line 350	lines connecting names to locations (dots) added to Figure 2.
Line 451	rewritten to improve explanation
Line 472-479	The timing of the mast falling has been added
Line 510	Adding new Figure 3 leads this figure describing St. Esprit to remain as Fig. 7
Line 531	clarified to reflect this was Chenowith's Table IV
Line 565	I chose to retain this in the paper since the other elements of the image provide support to the exploration for the Tilbury wreck and the early references to Tilbury on the chart; specifically requested by one of the reviewers that this be added to the paper. The fieldstone walls are a minor piece of added interest but not central to the purpose of the image.
Line 591	'feet'
Line 594	explanation provided (normal lines from wind vectors at ship locations); (4) French ships.. added; translation speeds removed from the figure. (note: translation speed estimates were added to the text and suggest that the storm may have slowed slightly as it crossed into Nova Scotia waters; seeking advice as to retaining this, but it could reflect the start of extratropical transition as it encountered a blocking high suggested by prevailing westerlies, colder temperatures immediately following the storm with the intensity of the storm a result of strong temperature gradients

Line 645 explanation provided... the NAO tends to diminish as the season progresses (Hart and Evans 2001)

Line 672 explanation included in the new Fig. 3 (calculations of estimated ship positions provided separately)

Line 707 This section has been rewritten to include new references to extratropical intensification and to focus on temperature gradient rather than 'westerlies' which juxtapose continental and maritime circulation but are prevailing rather than unique to the LIA. As written previously this was not clear. Hart and Evans' (2001) model reflects on the role of the westerlies expanding the colder air mass toward the east as fall temperatures expand across North America, but the focus should have been on the temperature.

Line 735 continental westerlies are year-round but increase in intensity as winter arrives and decrease in intensity as summer arrives in the northern hemisphere. Again, this section has been rewritten to better focus on temperature, which is the single biggest change between today and the LIA.

Line 746-748 rewritten with added pertinent references

#### General Changes:

A map with the British ship positions has been added to the paper. It was thought that this is better than as a supplement since it provides immediate visual context for the reader and was recommended by the reviewers.

A supplement describing the process of locating ship logs and deriving relevant dates, transposing longhand entries has been added which includes an image of one of the logs (Sunderland) to help illustrate that locating and extracting relevant data from historical records is not simple.

The behaviour of westerlies in the northern hemisphere is a standard seasonal pattern but it is the expansion of colder continental temperatures, aided by the prevailing westerlies, that allowed continental air to interact with north-tracking tropical air (cyclone).

Figure 6 (now Figure 7) has been changed as requested