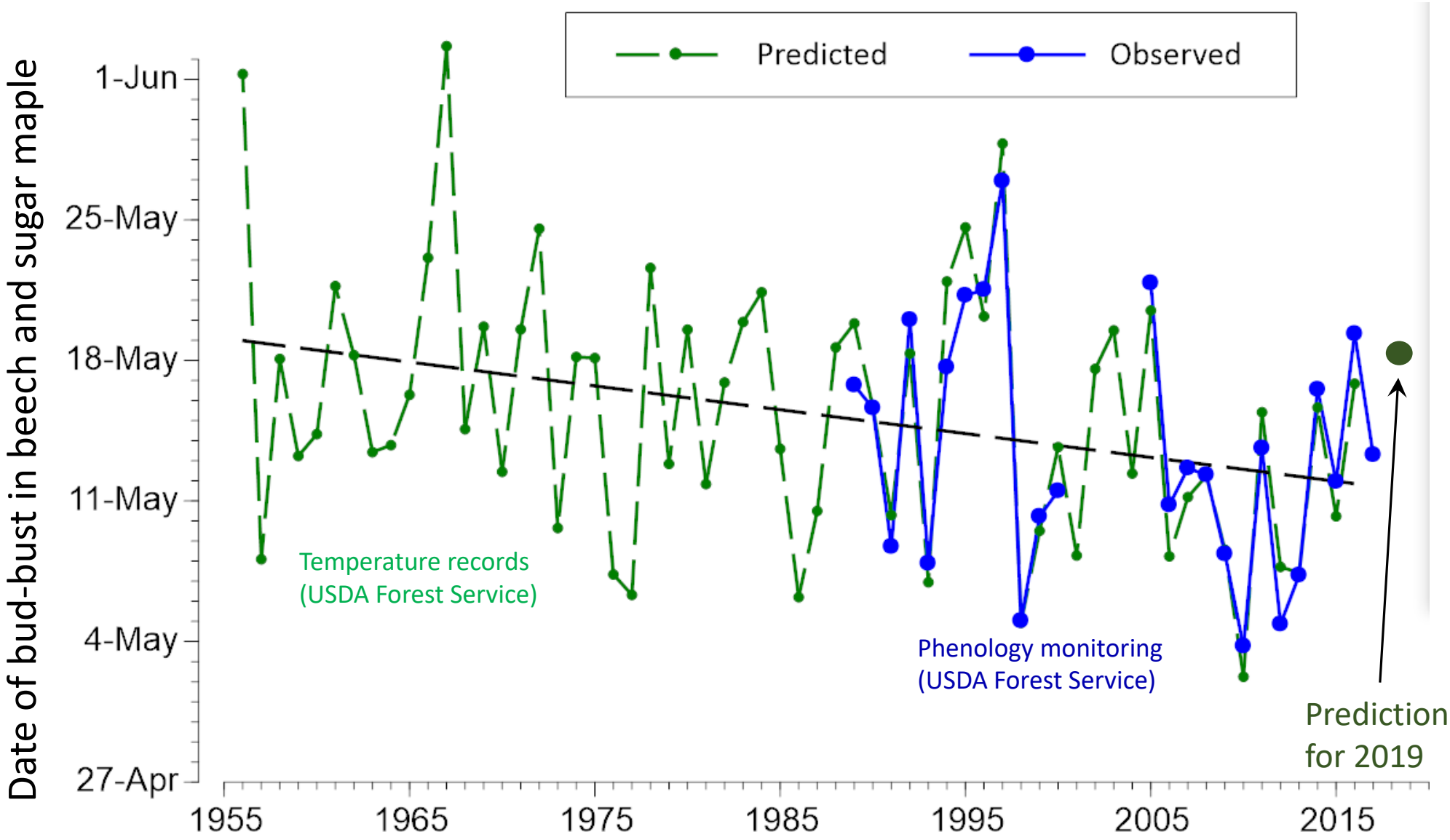
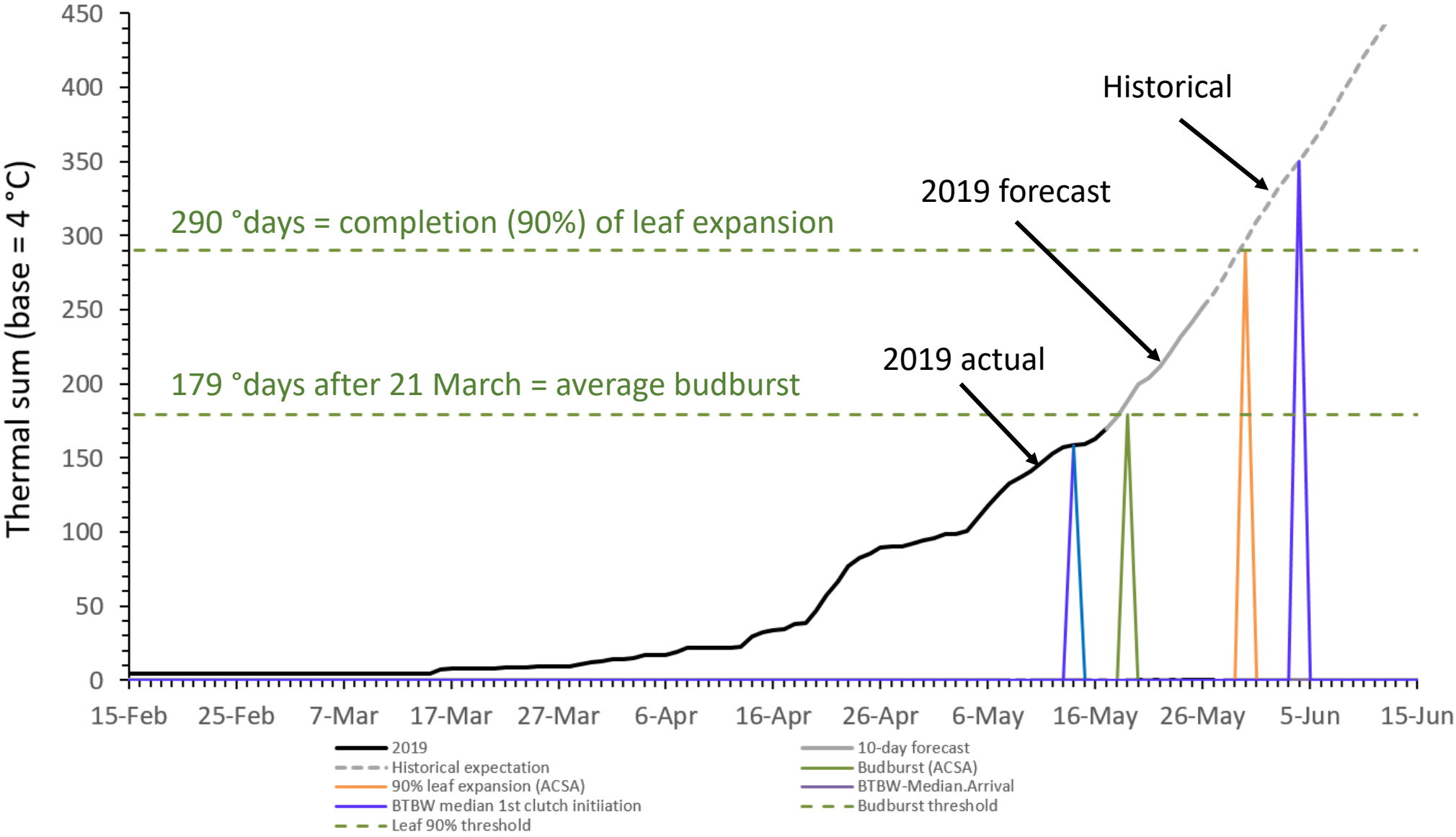


- Budburst defines the beginning of annual activity in the green food web.
- The date of budburst in sugar maple and beech varies by up to four weeks among years (4 May to 2 June since 1957).
- The expected date has advanced by 7 days in 60 years.
- Best prediction model as of 2018: budburst at 179 °days > 4 °C after 21 March (modified from Lany et al. 2015).

Estimated leaf-out phenology for Main Bird Plot 2019 based on thermal sums.

As of 18 May 2019, predicted dates for budburst and 90% completion of leaf expansion are:
19 May and 30 May.

Predicted median dates of Arrival and 1st clutch initiation by BTBW are:
14 May and 4 June.

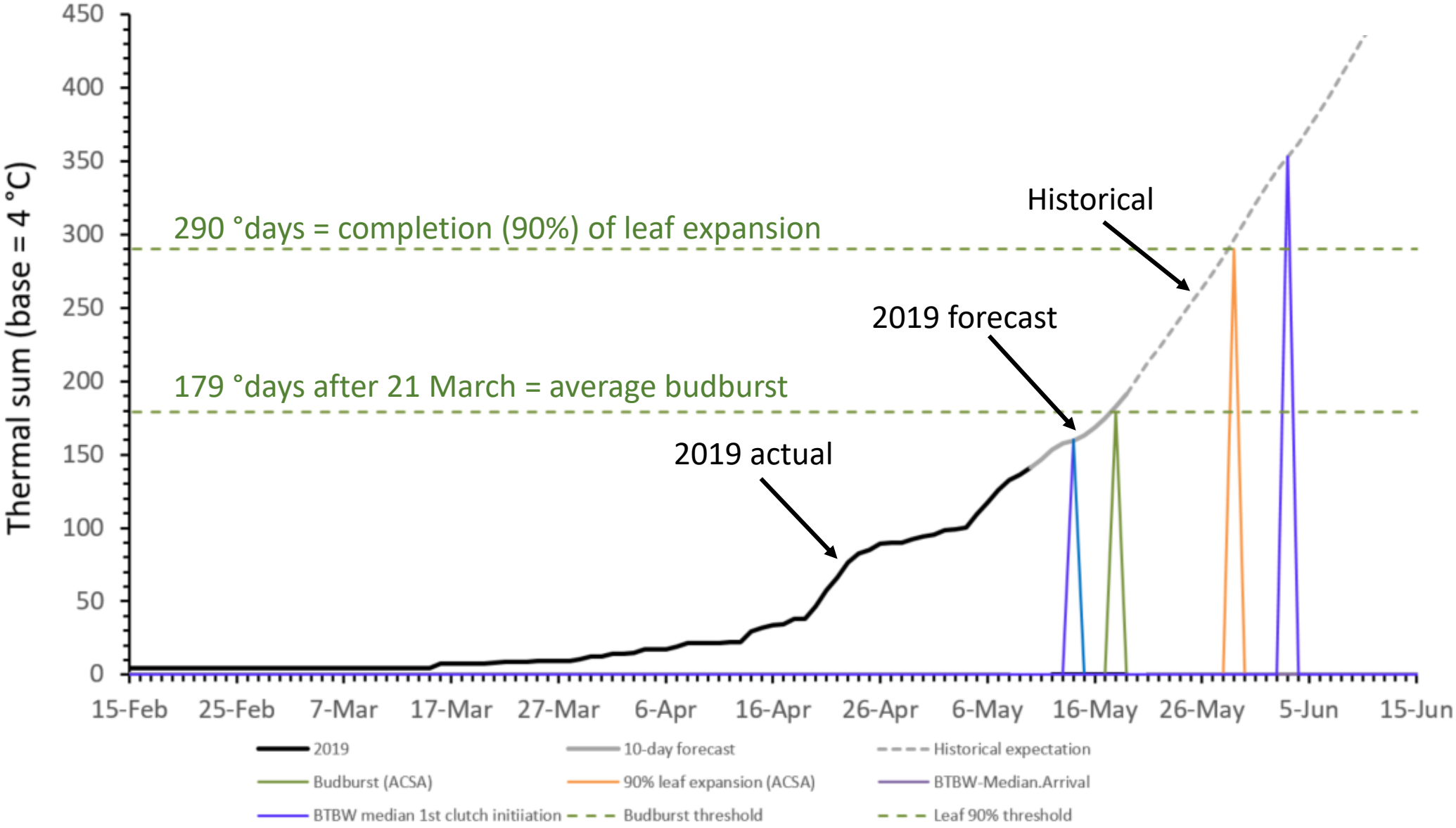


Real-time temperature records from USDA National Water & Climate Center (site 2069).
Phenological models adapted from Lany et al. 2016 using long term data of USDA Forest Service.

Estimated leaf-out phenology for Main Bird Plot 2019 based on thermal sums.

As of 11 May 2019, predicted dates for budburst and 90% completion of leaf expansion are:
18 May and 29 May.

Predicted median dates of Arrival and 1st clutch initiation by BTBW are:
14 May and 3 June.

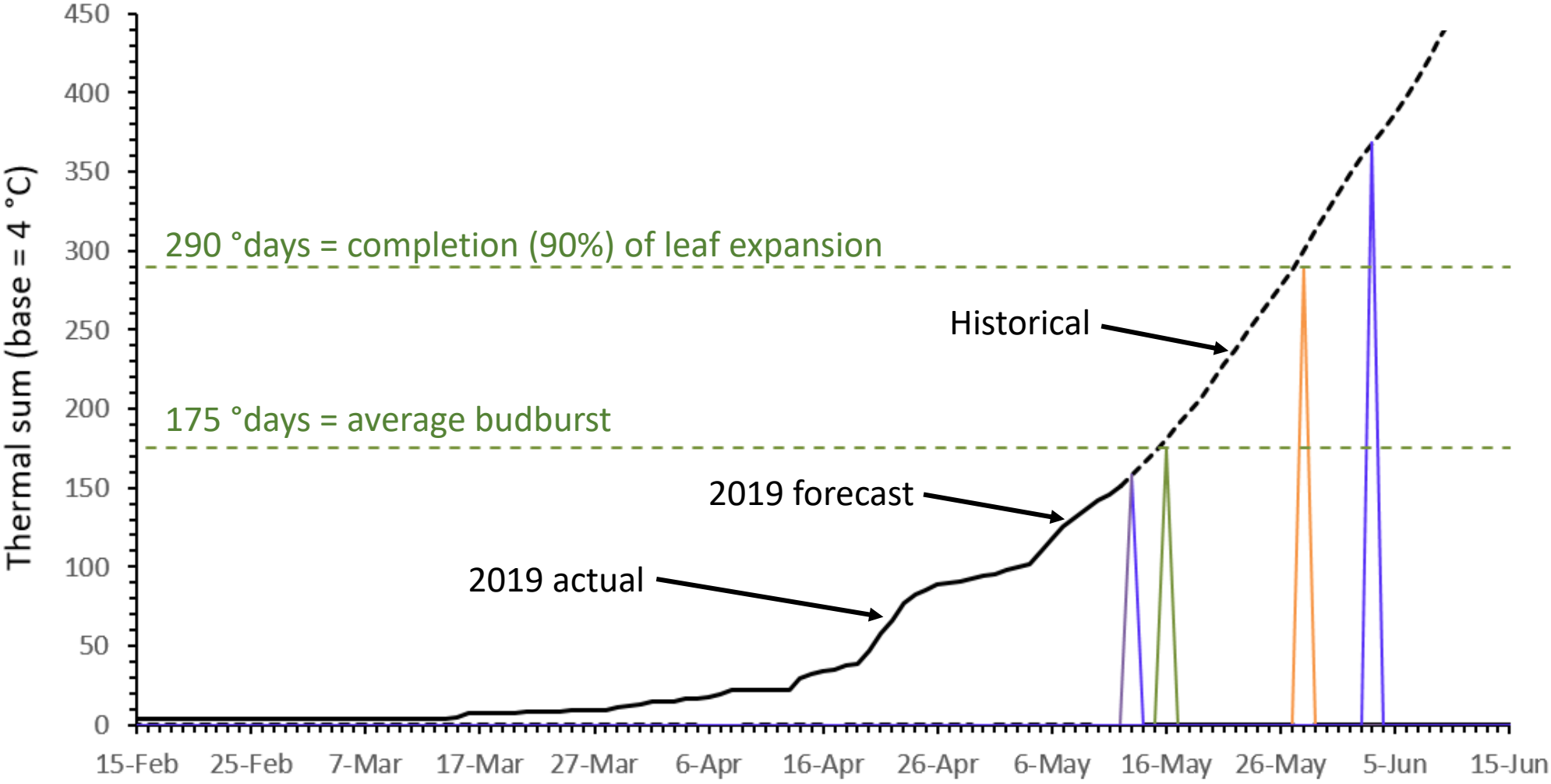


Real-time temperature records from USDA National Water & Climate Center (site 2069).
Phenological models adapted from Lany et al. 2015.

Estimated leaf-out phenology for Main Bird Plot 2019 based on thermal sums.

As of 4 May 2019, predicted dates for budburst and 90% completion of leaf expansion are:
16 May and 28 May.

Predicted median dates of Arrival and 1st clutch initiation by BTBW are:
13 May and 3 June.

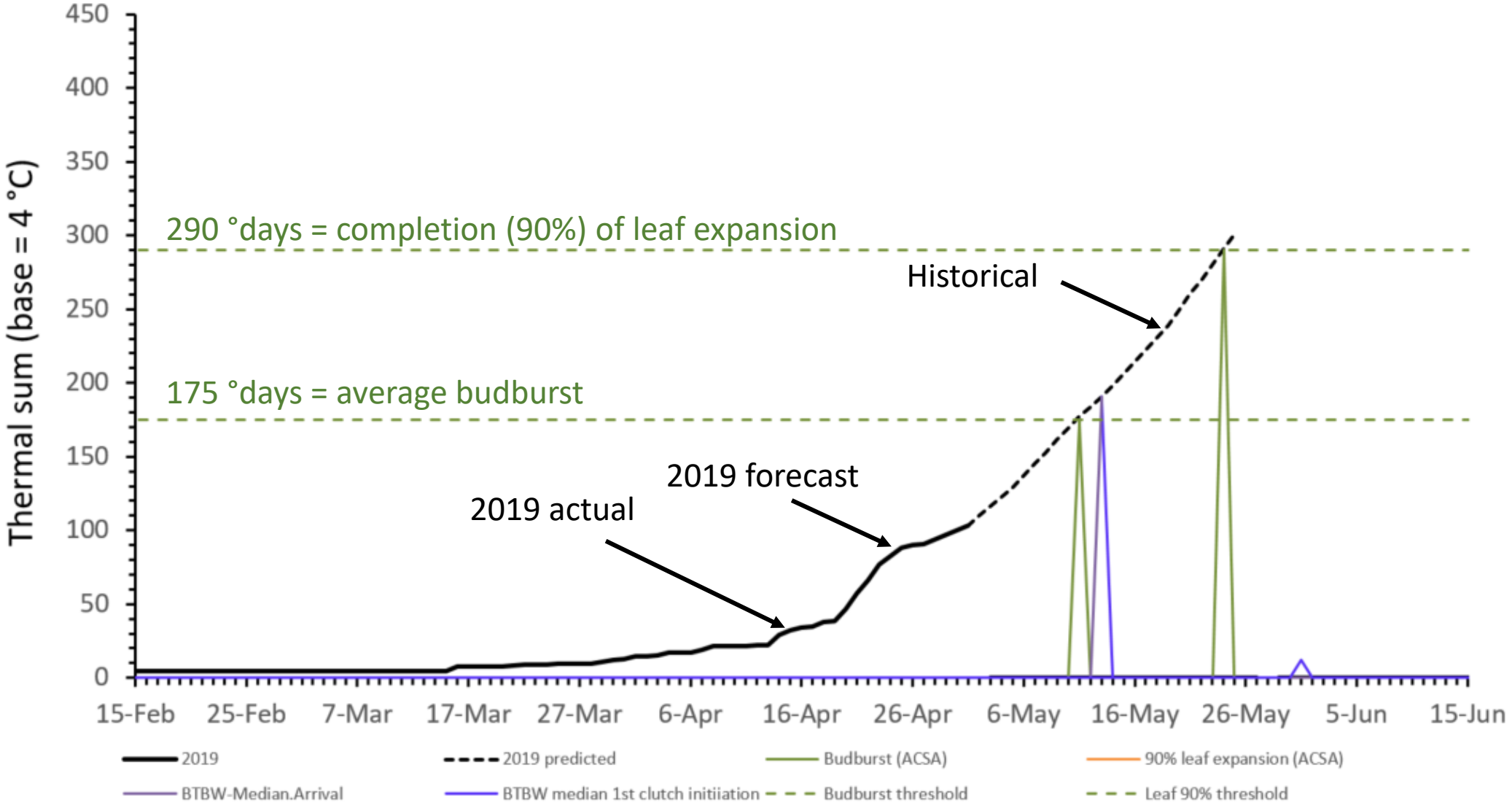


Real-time temperature records from USDA National Water & Climate Center (site 2069).
Phenological models adapted from Lany et al. 2015.

Estimated leaf-out phenology for Main Bird Plot 2019 based on thermal sums.

As of 24 April 2019, predicted dates for budburst and 90% completion of leaf expansion are:
11 May and 24 May.

Predicted median dates of Arrival and 1st clutch initiation by BTBW are:
13 May and 31 May.



Real-time temperature records from USDA National Water & Climate Center (site 2069).
Phenological models adapted from Lany et al. 2015.