GOES-17 Saturation Prediction Reference Tools

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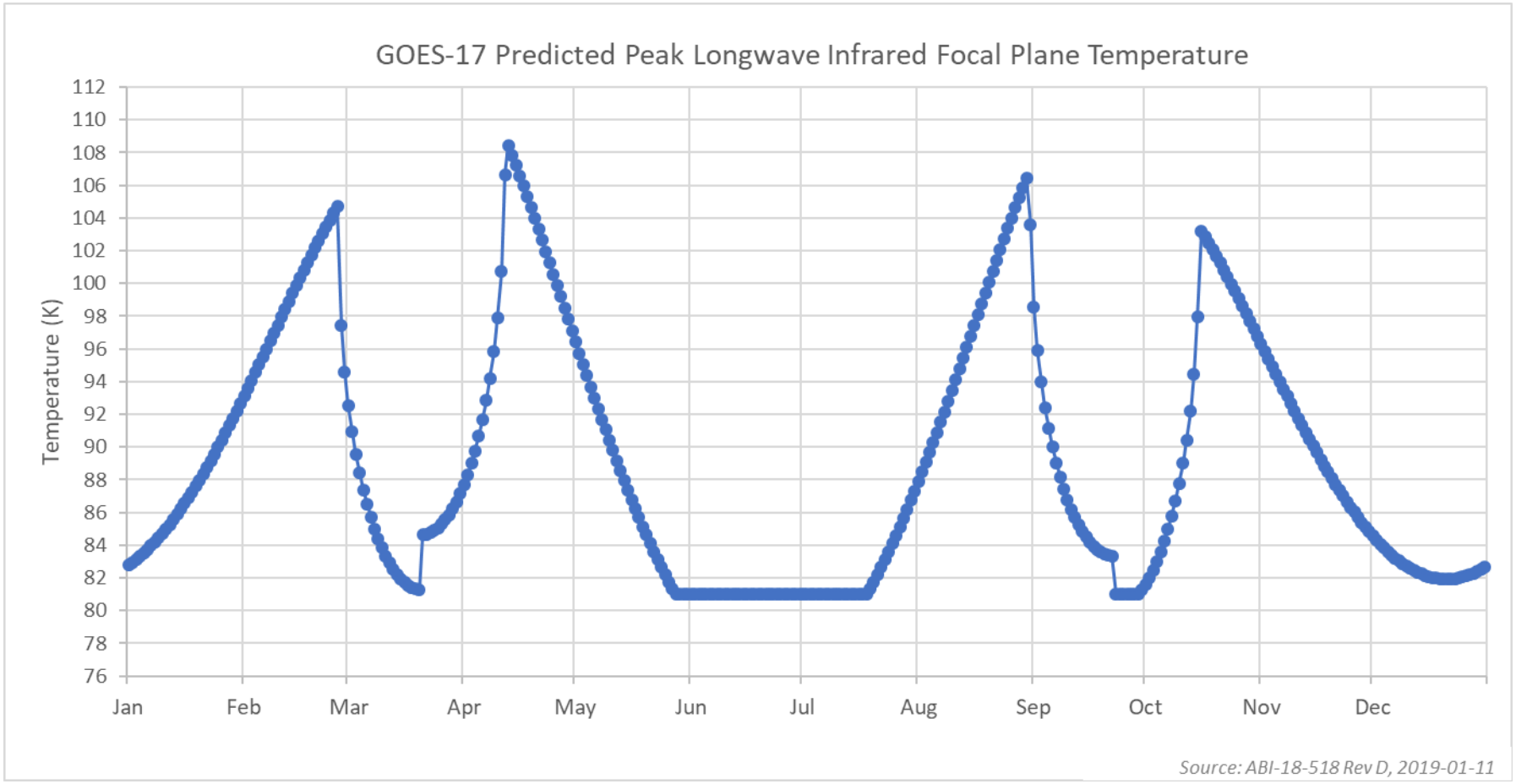
Outline of Saturation Prediction Reference Tools

- Daily Maximum Temperatures
- Daily Maximum Temperatures with Band Thresholds
- Hour-by-Hour Band Saturation
- Interpretation of Marginal and Unusable Hours
- Example Images of “Margin” and “Unusable” Hours

Important Caveat

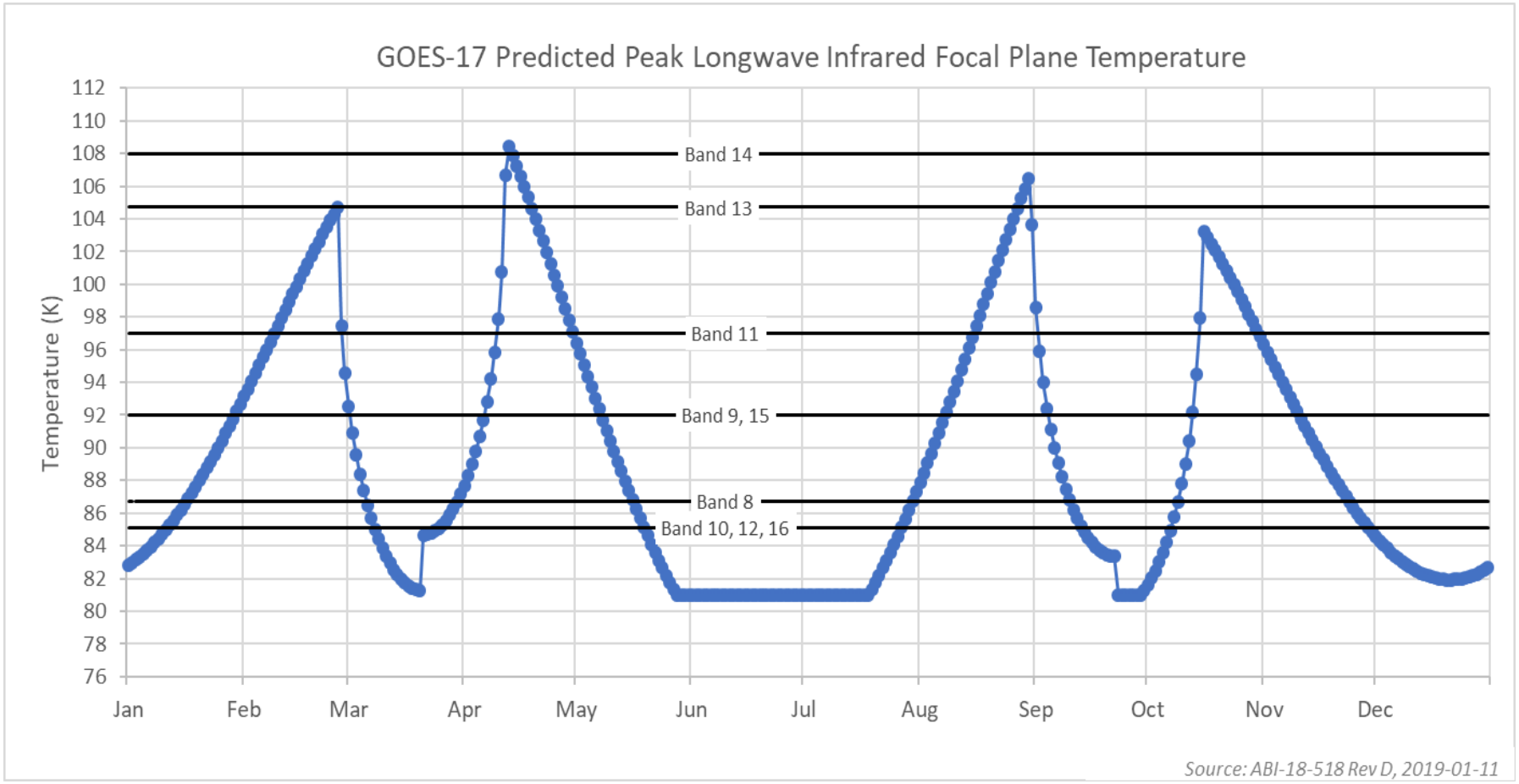
- NOTE: All of the information in this slide deck is **predictive**.
- The actual extent of saturation will differ from the predictions by both temperature magnitude and time of day
- Differences between actual and prediction may also have seasonal variations
- The data in this slide deck indicate “marginal” saturation when imagery is still useful, but some saturation artifacts are present (see example imager at end of slide deck)
- In coming months the predicted data will be revisited and in cases where the predictions may be improved, this slide deck will be updated and redistributed

Predicted Daily Maximum Temperatures of Focal Plane Module (FPM)



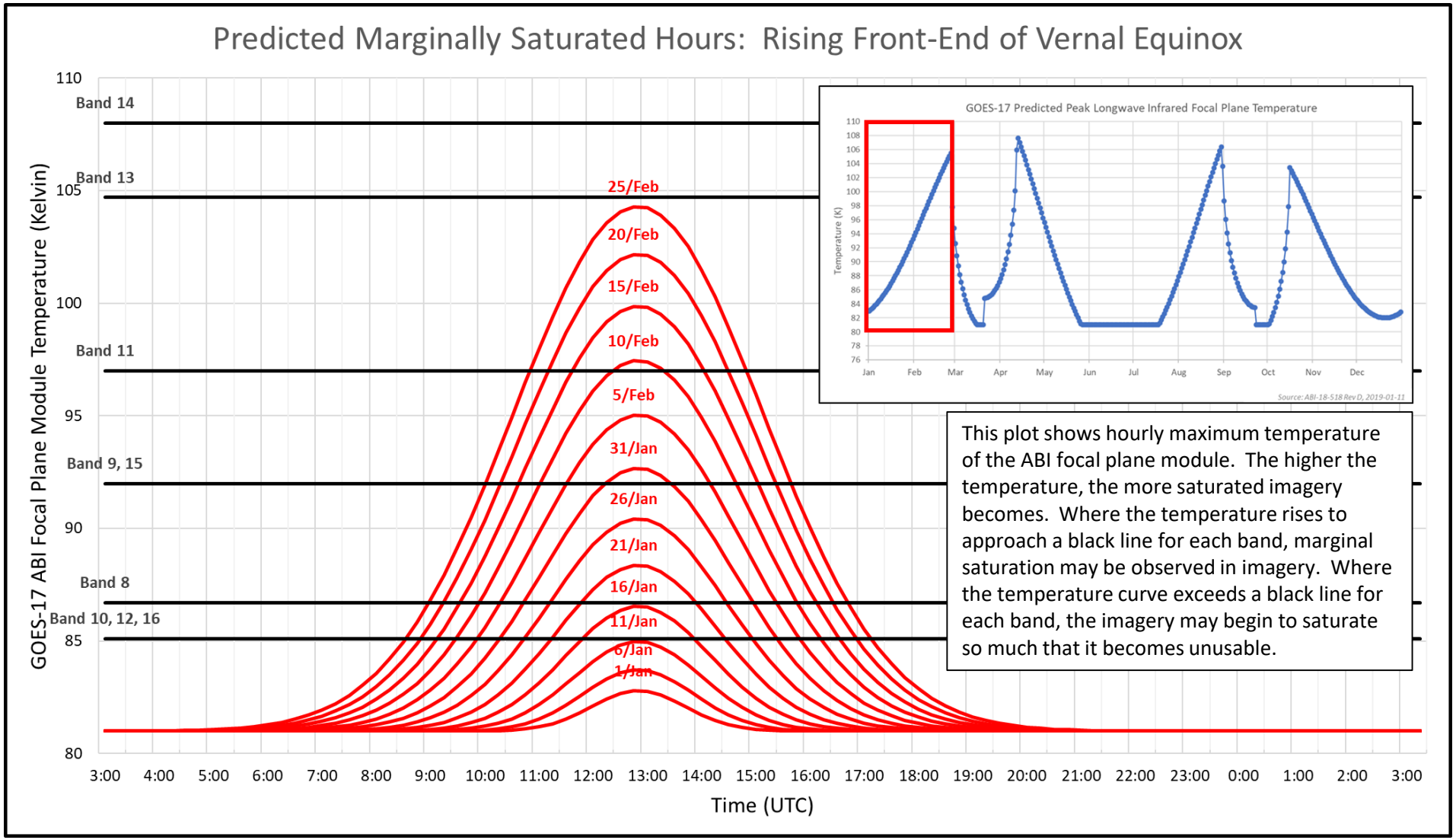
This plot shows daily maximum temperature of the ABI focal plane module. These maximums occur at night. The higher the temperature, the more saturated imagery becomes.

Predicted Daily Maximum Temperatures of Focal Plane Module (FPM) with Marginal Saturation Thresholds for Each Band

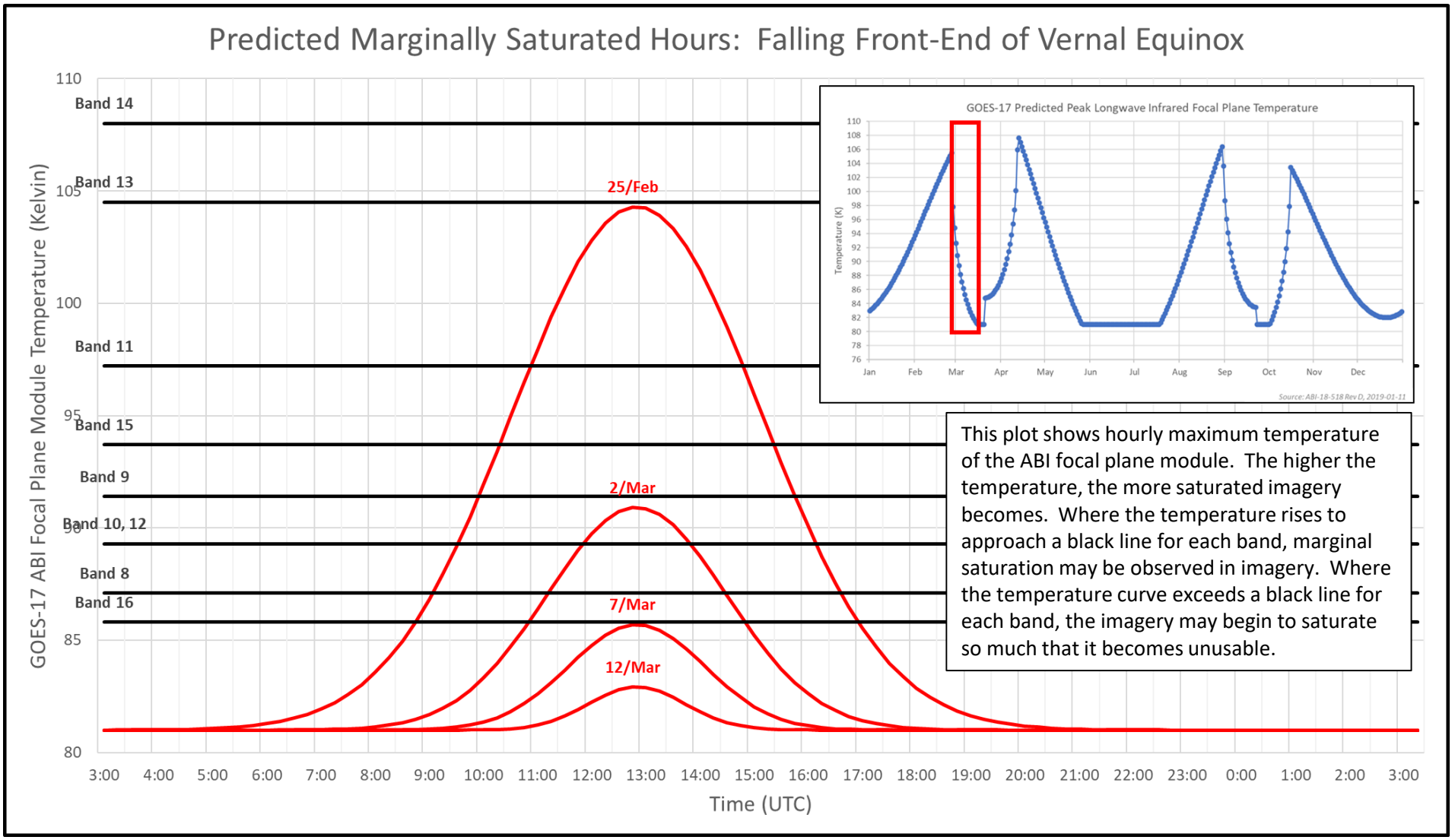


This plot shows daily maximum temperature of the ABI focal plane module. These maximums occur at night. The higher the temperature, the more saturated imagery becomes. Where the temperature rises to approach a black line for each band, marginal saturation may be observed in imagery. Where the temperature curve exceeds a black line for each band, the imagery may begin to saturate so much that it becomes unusable.

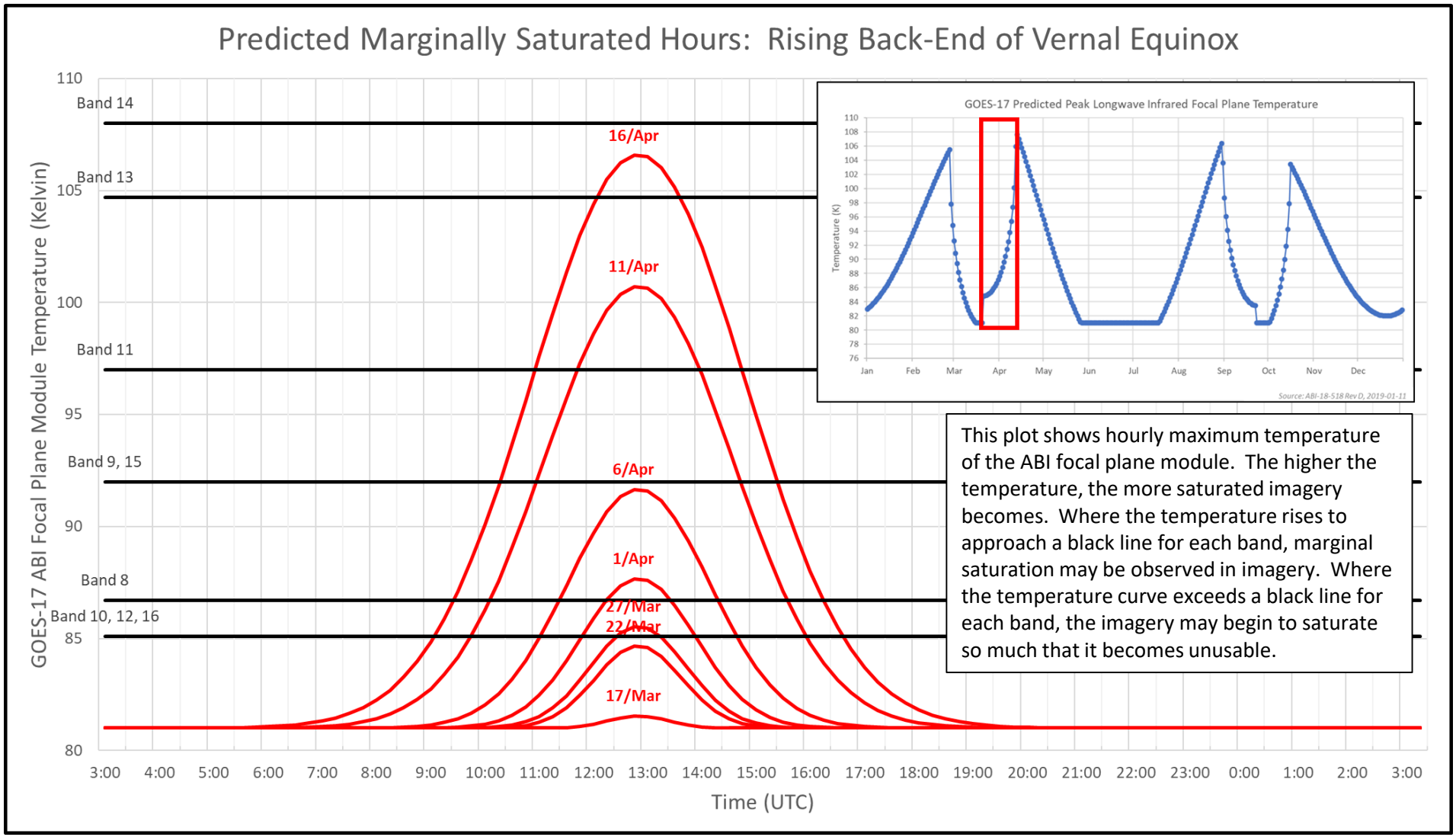
Predicted Marginally Saturated Hours by Band



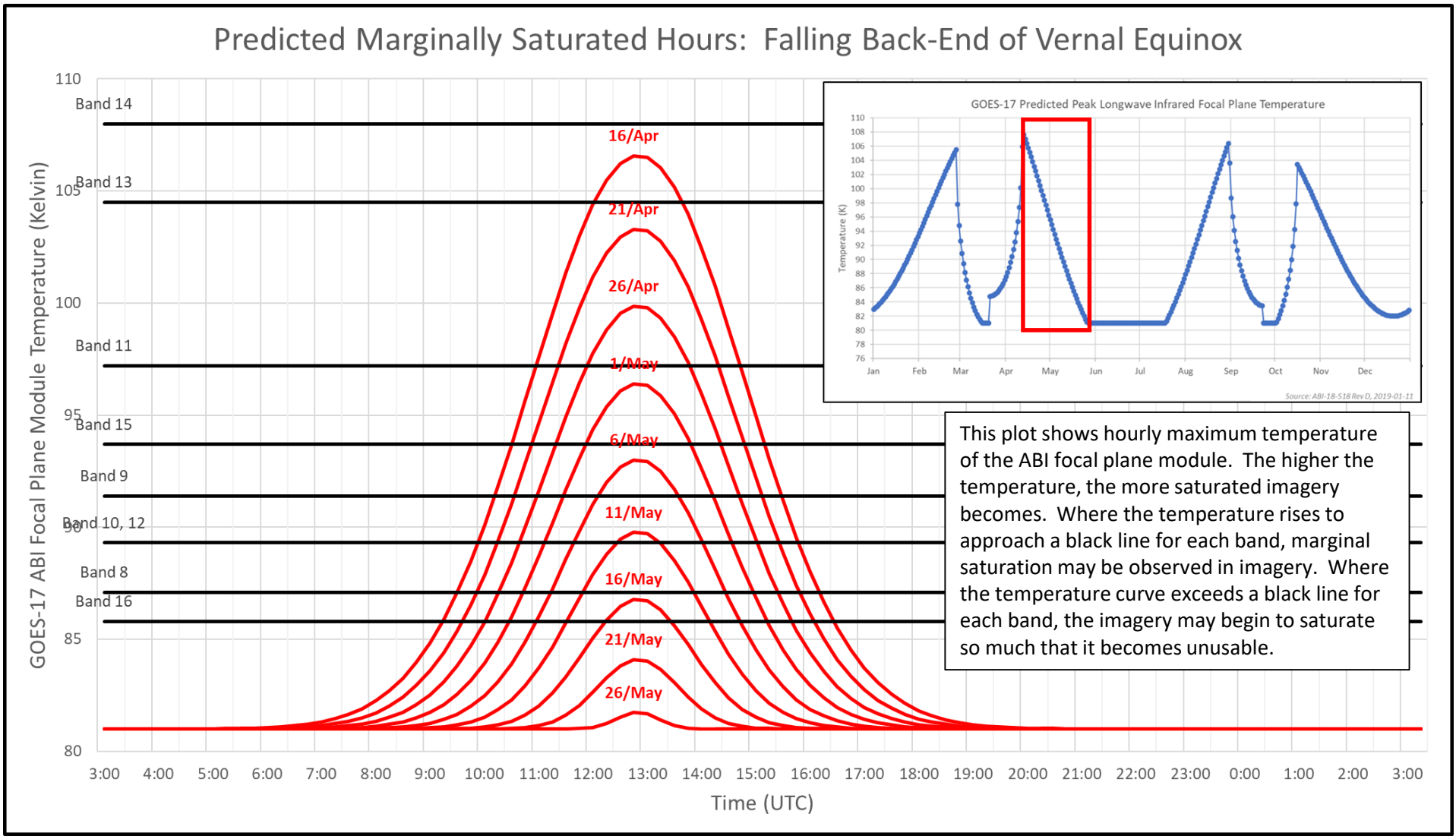
Predicted Marginally Saturated Hours by Band



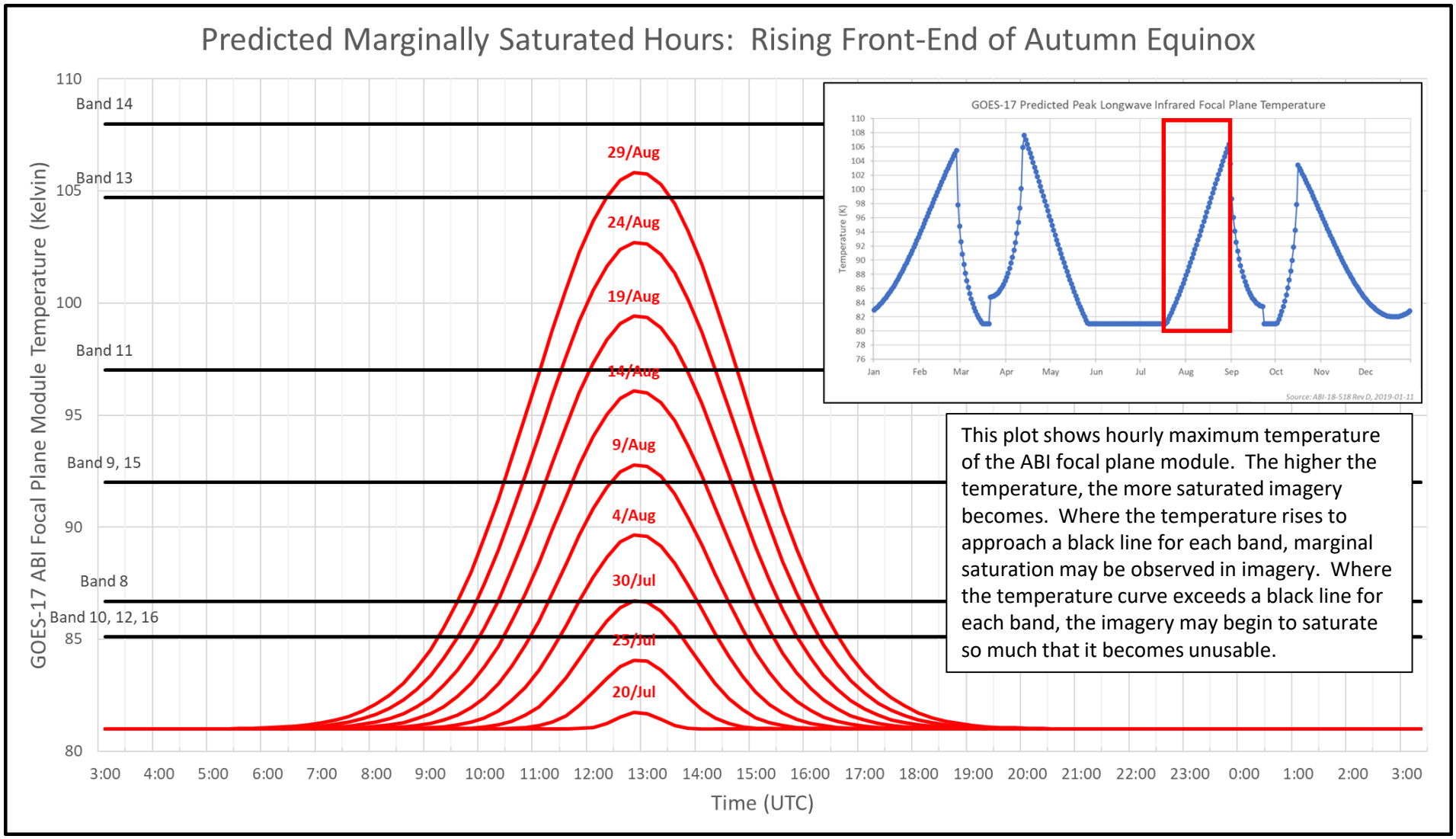
Predicted Marginally Saturated Hours by Band



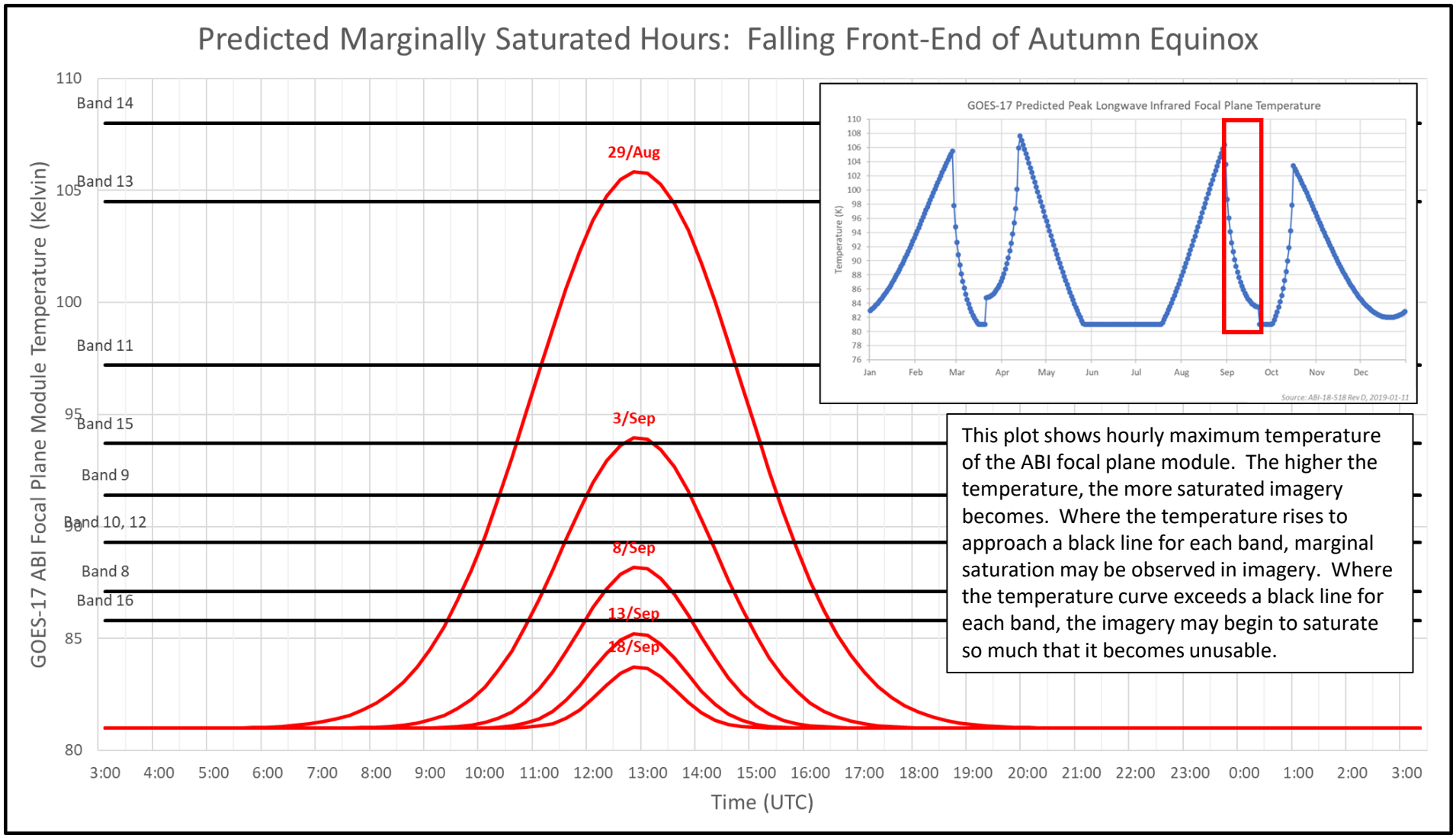
Predicted Marginally Saturated Hours by Band



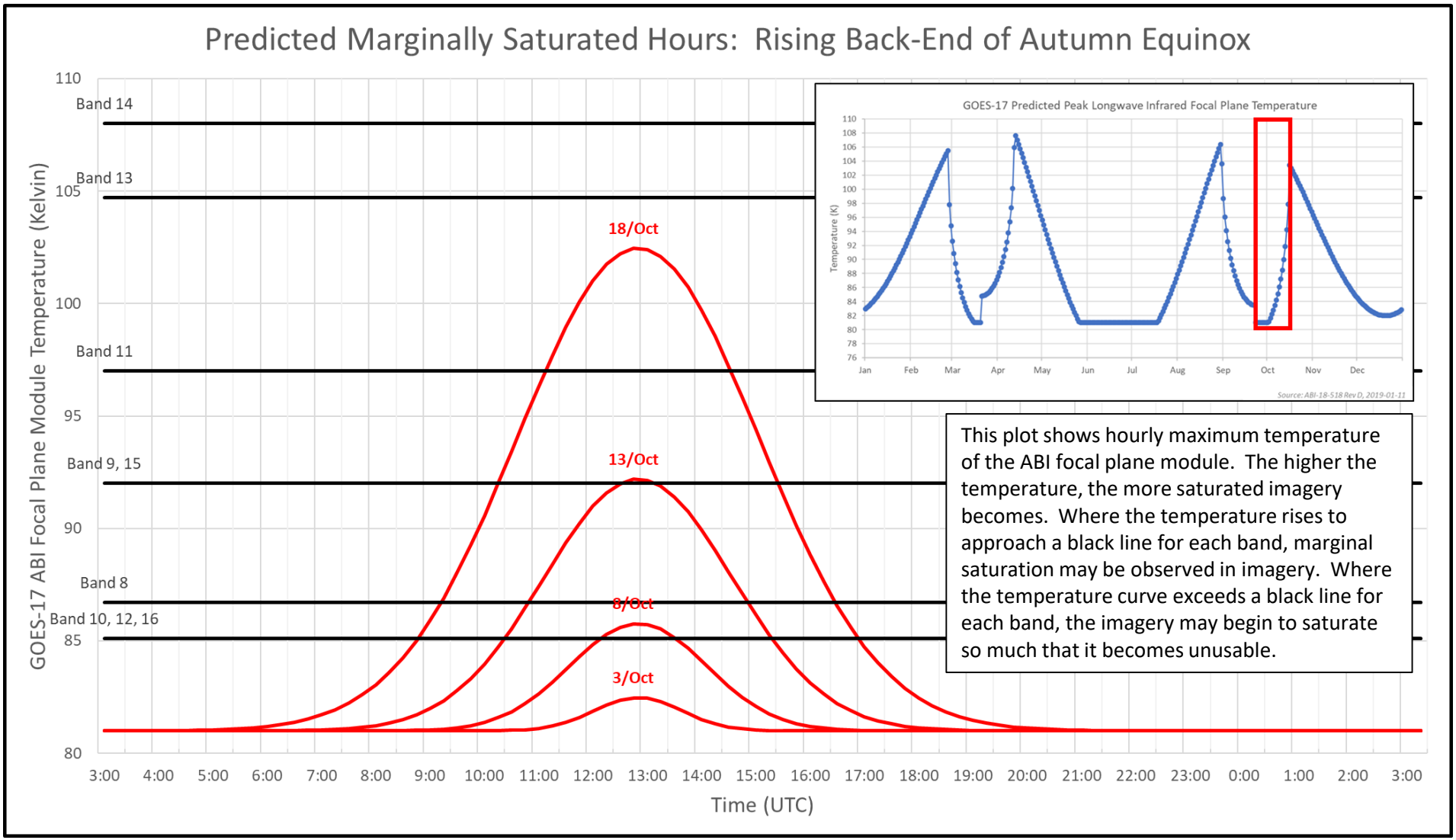
Predicted Marginally Saturated Hours by Band



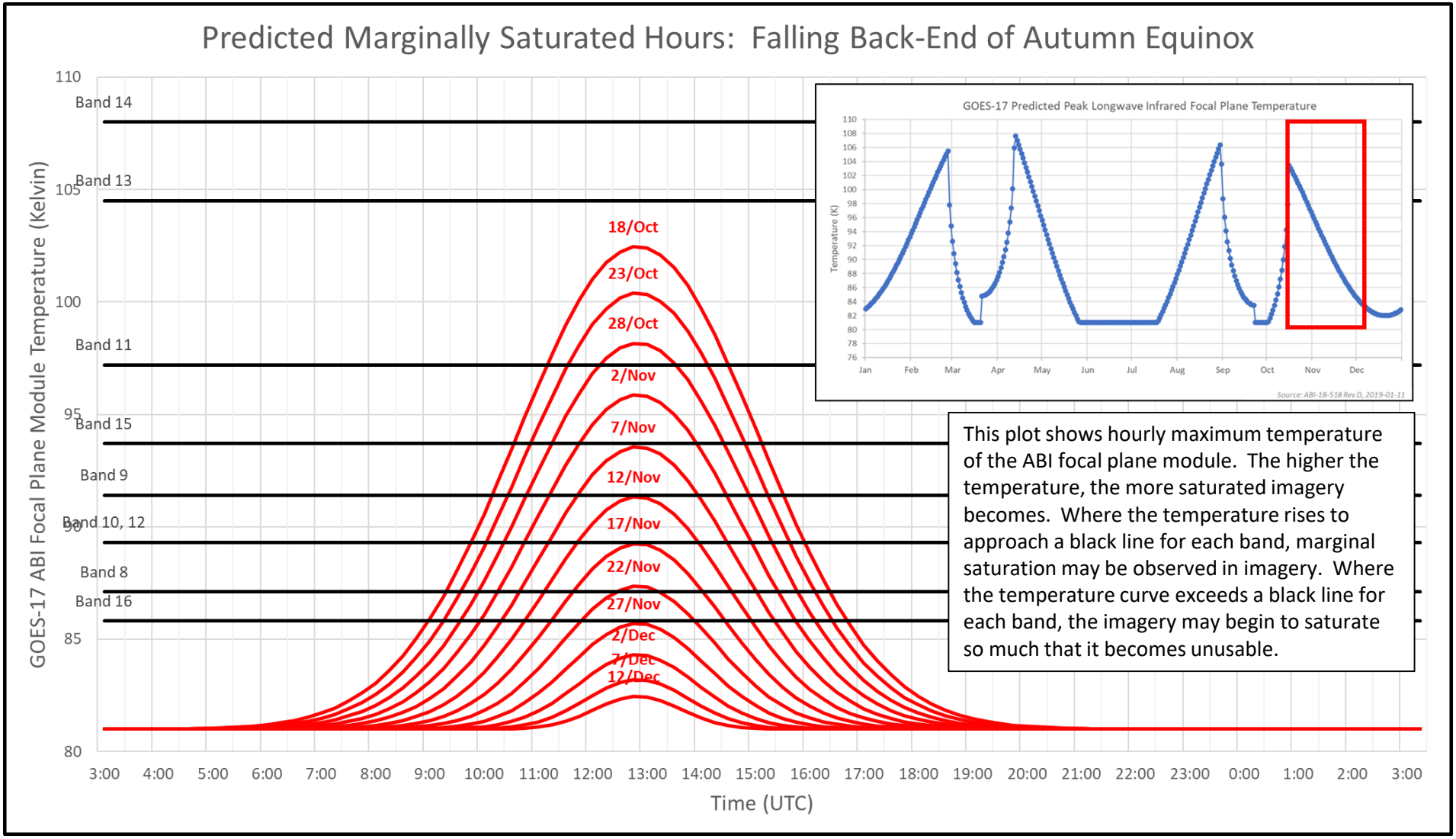
Predicted Marginally Saturated Hours by Band



Predicted Marginally Saturated Hours by Band



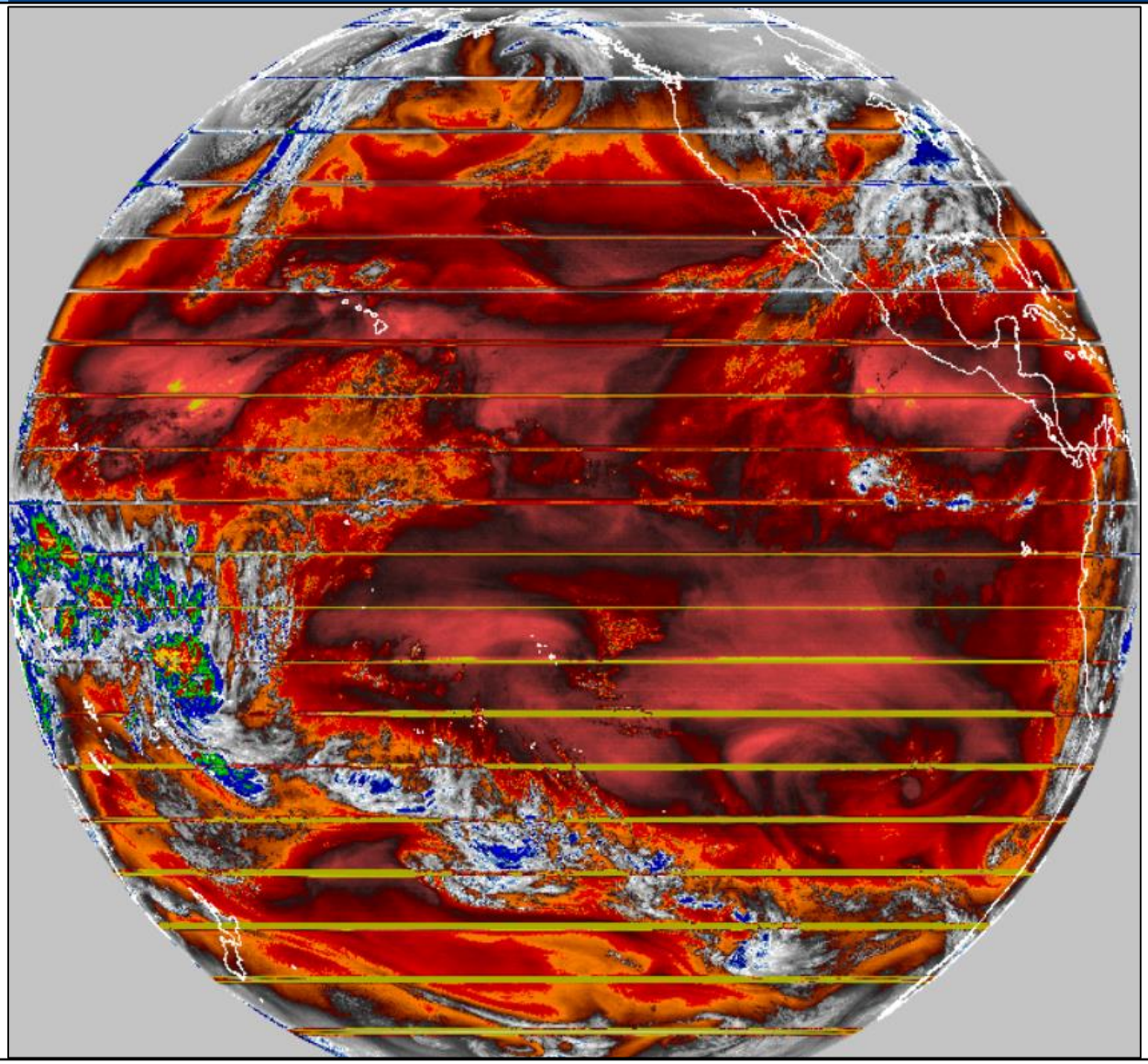
Predicted Marginally Saturated Hours by Band



Plot of Marginal and Unusable Hours

2019 Predictions		
Date Range	Saturation Increase/Decrease	Approximate Time of Day
1 January - 26 February	Channel saturation begins starting with bands in this order: 10, 12, 16, 8, 9, 15, 11 from marginal to unusable by the end of the time period. Peak saturation for all bands is estimated to occur on 26 February.	Saturation can occur daily between 0830-1730 UTC with peak saturation occurring at approximately 1300 UTC.
26 February - 20 March	Channel saturation improves starting with bands in this order: 11, 15, 9, 10, 12, 8, 16 from unusable to marginal by the end of the time period.	Saturation can occur daily between 0900-1700 UTC with peak saturation occuring at approximately 1300 UTC.
20 March	Spring Equinox	
20 March - 13 April	Channel saturation begins starting with bands in this order: 10, 12, 16, 8, 9, 15, 11, 13 from marginal to unusable by the end of the time period. Peak saturation for all bands is estimated to occur on 13 April.	Saturation can occur daily between 0900-1700 UTC with peak saturation occurring at approximately 1300 UTC.
13 April - 26 May	Channel saturation improves starting with bands in this order: 13, 11, 15, 9, 10, 12, 8, 16 from unusable to marginal by the end of the time period.	Saturation can occur daily between 0900-1700 UTC with peak saturation occurring at approximately 1300 UTC.
26 May - 20 July	No channel saturation	
20 July - 30 August	Channel saturation begins starting with bands in this order: 10, 12, 16, 8, 9, 15, 11, 13 from marginal to unusable by the end of the time period. Peak saturation for all bands is estimated to occur on 30 August.	Saturation can occur daily between 0900-1700 UTC with peak saturation occurring at approximately 1300 UTC.
30 August - 23 September	Channel saturation improves starting with bands in this order: 13, 11, 15, 9, 10, 12, 8, 16 from unusable to marginal by the end of the time period.	Saturation can occur daily between 0930-1630 UTC with peak saturation occurring at approximately 1300 UTC.
23 September	Fall Equinox	
23 September - 16 October	Channel saturation begins starting with bands in this order: 10, 12, 16, 8, 9, 15, 11 from marginal to unusable by the end of the time period. Peak saturation for all bands is estimated to occur on 16 October.	Saturation can occur daily between 0900-1700 UTC with peak saturation occurring at approximately 1300 UTC.
16 October - 12 December	Channel saturation improves starting with bands in this order: 11, 15, 9, 10, 12, 8, 16 from unusable to marginal by the end of the time period.	Saturation can occur daily between 0900-1700 UTC with peak saturation occurring at approximately 1300 UTC.

Example of Marginally Saturated Image



Example of Unusable Saturated Image