Annex 5 – Time Series and Data Exclusion Summary

Summary of Data Exclusions

Meteorological Mast

Mid Kames North Mast– some data excluded where the windspeed was less than 0.13m/s

Noise Monitoring Locations

NML1 - removed a few atypical periods -day and night. No obvious dawn chorus.

NML2 - removed a few atypical periods -day and night. No obvious dawn chorus. Some atypical data was removed during the day time period on 2nd September (where background noise increased without apparent influence from wind speed) and the night time period on 14th and 15th September (after a prolonged rainfall period).

NML3 - removed a few atypical periods -day and night. No obvious dawn chorus. One atypical period was identified on 07/07 where background noise increased without apparent influence from wind speed or rainfall at wind speeds between 5-7m/s and this data was removed. Whilst the location is close to the sea the kit was sited such that the property provided screening and no material variation in background noise levels with wind direction was observed.

NML4 – No data exclusions.

NML5 – Night time background noise data appears to be influenced by early dawn chorus and road traffic noise from the A970. The kit was specifically sited to minimise the influence of road traffic noise with the NML placed such that nearby buildings provided screening. Influence from road traffic noise is considered typical of the receptors in the immediate area but not for those located to the east where the data has been used as a proxy, as such the data has been filtered to remove any road traffic noise influence in the morning. In addition, on inspection of the data set the data appeared to be influenced by sea noise from the bay to the south east. The data was directionally filtered to remove the influence of sea noise as can be seen on Annex 1, Figure A1.2e.

NML6 – The dataset exhibits a large variation in background noise levels for all wind speeds. This is particularly evident during night time periods (15 dB - 35 dB at 2 m/s). On inspection of the time series data it appears that road traffic noise is the cause of the levels early in the morning. The kit was sited to the west of the property itself to minimise the influence of the A970 (in the event that monitoring is undertaken on the other side of the property, measured noise levels would be expected to be higher). Given that road traffic noise is typical for this property and that this dataset is not being used as a proxy for other locations, no filtering has been applied. It should be noted that average background noise levels during the night time periods remain low such that the ETSU-R-97 noise limit will be flat 43dB up to 10m/s.

NML7 - removed a few atypical periods -day and night. No obvious dawn chorus

NML8 - removed a few atypical periods -day and night. No obvious dawn chorus. One atypical period identified on 30/06 where background noise increased without apparent influence from wind speed or rainfall at wind speeds between 5-7m/s and this data was removed.

NML9 - removed some atypical periods during the quiet daytime and night time periods. This involved removing periods of data during the evening and one some occasions all night. It is unclear what the atypical data is but the area near where the kit was installed is used to feed livestock so it is assumed that the atypical data maybe in part due to livestock and farming activities. In addition, some directional filtering was undertaken to remove any influence from the turbine to the south which was audible on occasion at the monitoring location. The kit was sited to the north of the building to minimise any influence.

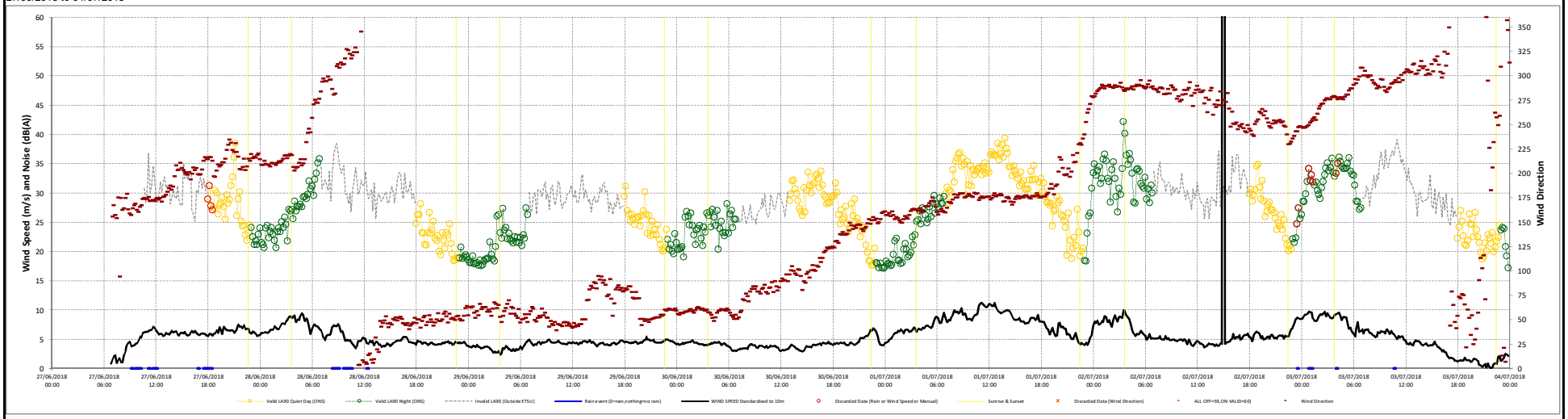
NML10 – The resident noted that building works were ongoing at the property and there appeared to be some atypical periods within the data which probably reflect noise levels when works were being undertaken. The atypical data has been removed along with a couple of atypical noise periods identified during the night time period.

NML11 – removed some atypical periods during the quiet daytime and night time periods. It is unclear what the atypical data was associated with.

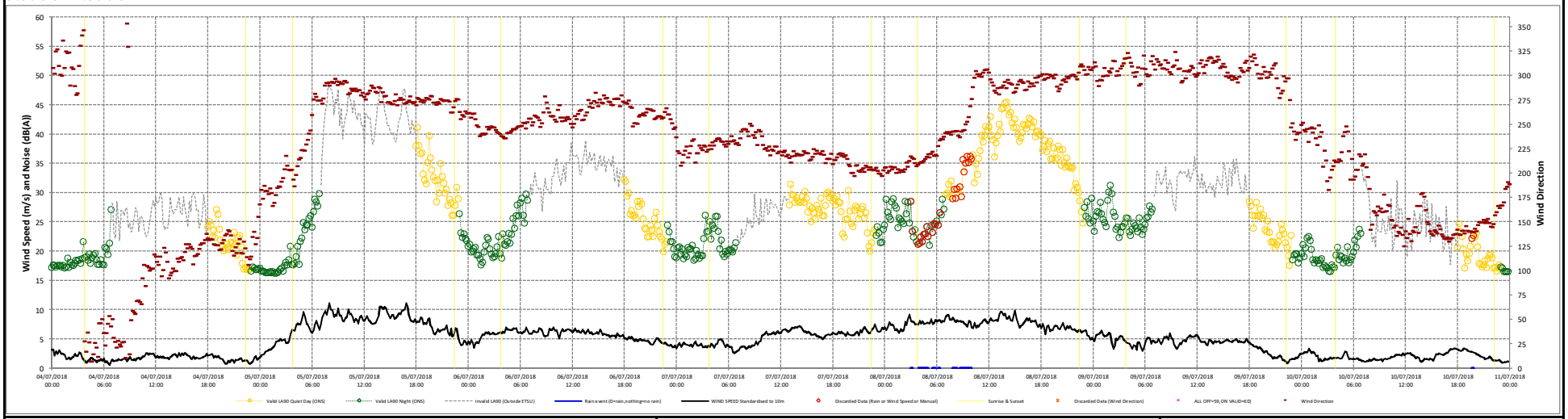
NML12 – A few data exclusions at night thought to be associated with a boiler flue at the property.

NML13 - removed a few atypical periods -day and night. No obvious dawn chorus

27/06/2018 to 04/07/2018

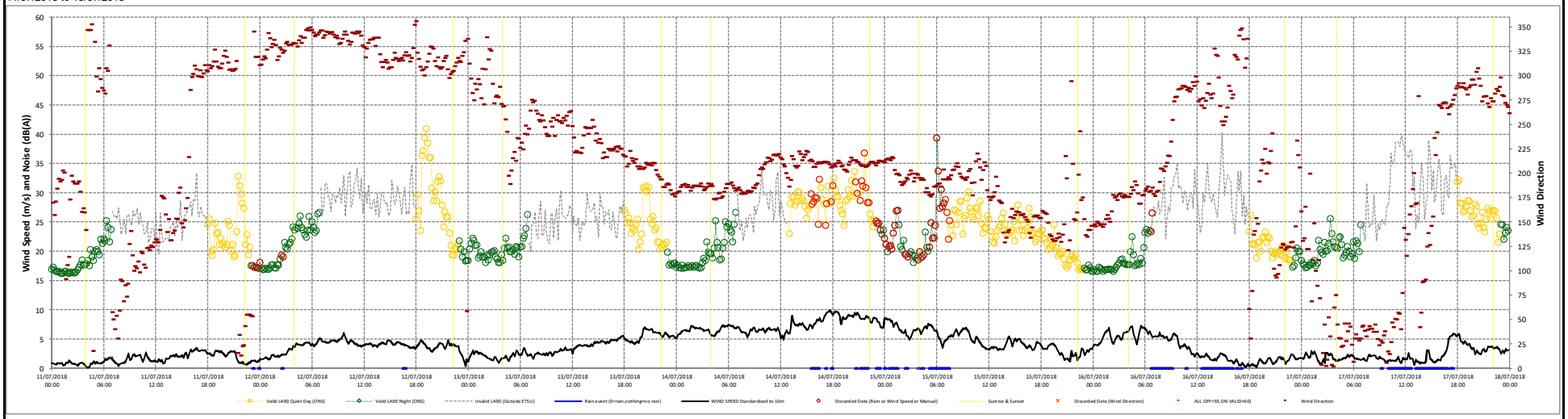


04/07/2018 to 11/07/2018

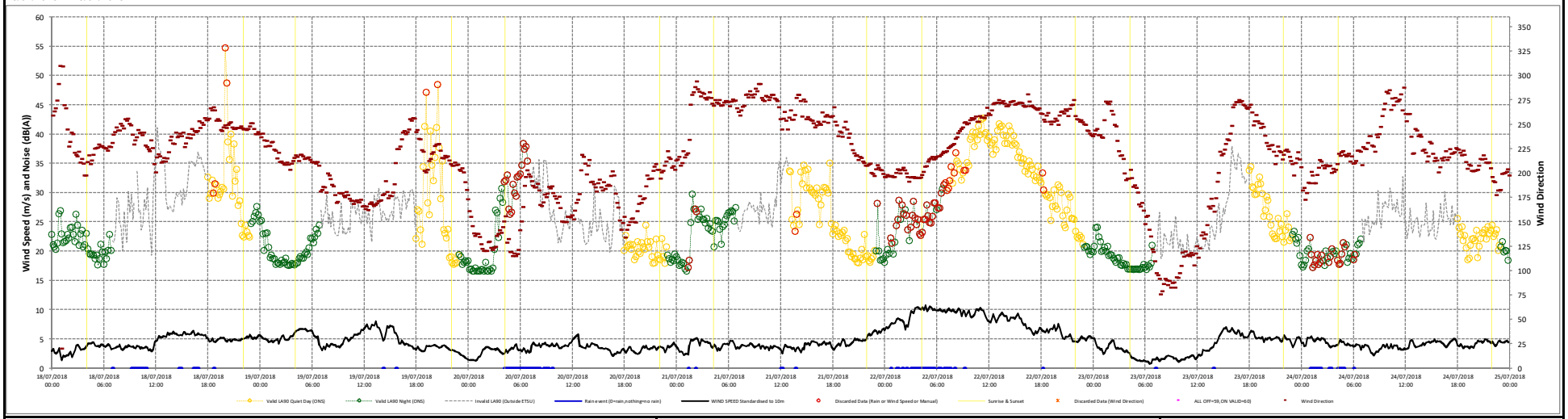


Project	Viking Wind Farm
Client	Viking Energy Wind Farm LLP
Title	Figure A5.1a: Time Series for Haa Buttons(ONS) Page 1 of 7
Date	18/10/2018

11/07/2018 to 18/07/2018



18/07/2018 to 25/07/2018



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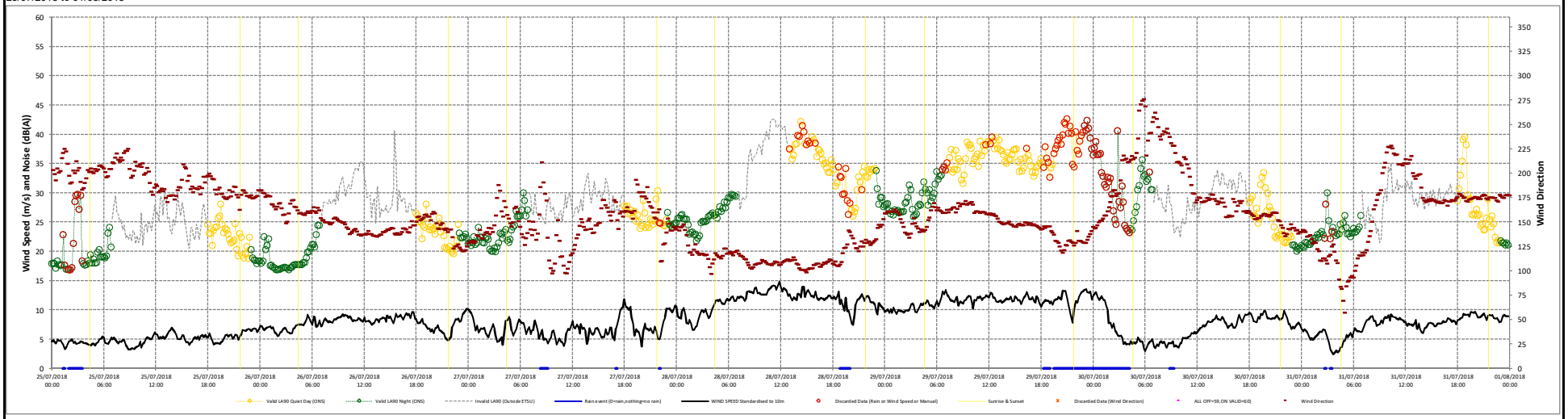
Title	Figure A5.1a: Time Series for Haa Buttons(ONS) Page 2 of 7
Date	18/10/2018

25/07/2018 to 01/08/2018



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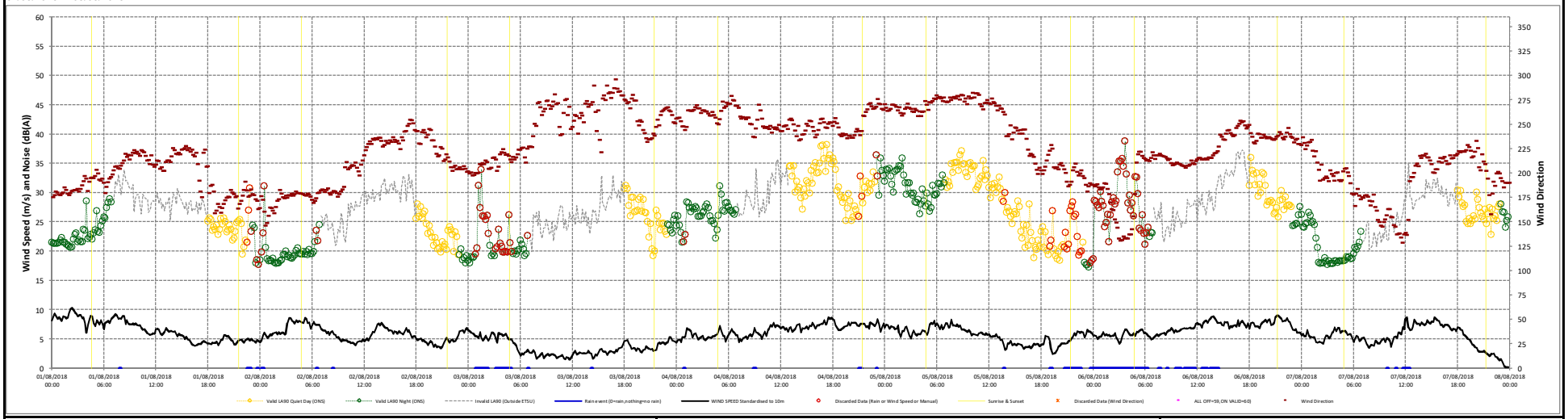
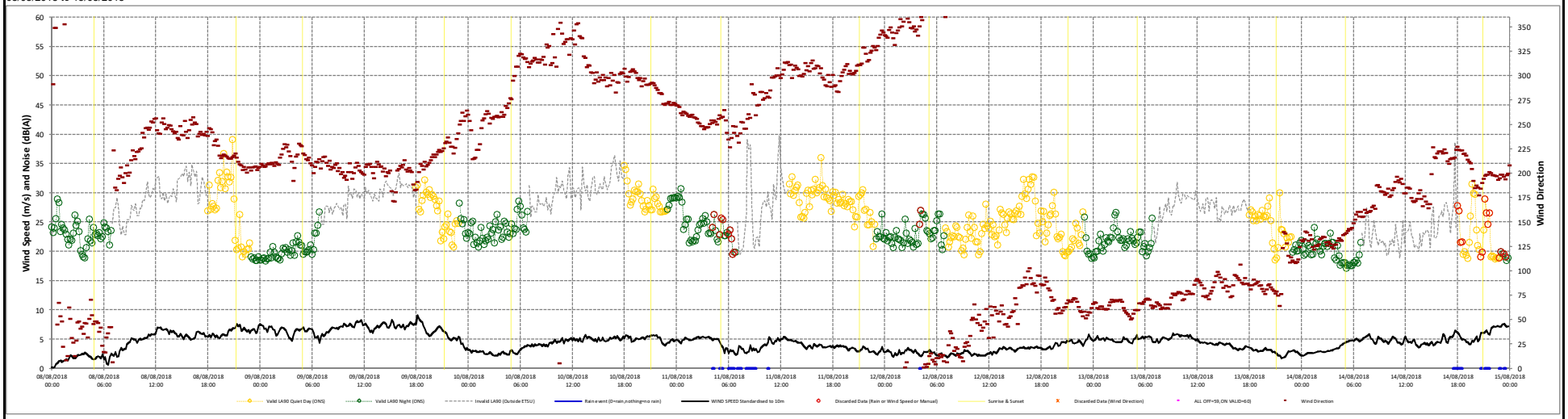


Project	Viking Wind Farm
Client	Viking Energy Wind Farm LLP
Title	Figure A5.1a: Time Series for Haa Buttons(ONS) Page 3 of 7
Date	18/10/2018

08/08/2018 to 15/08/2018



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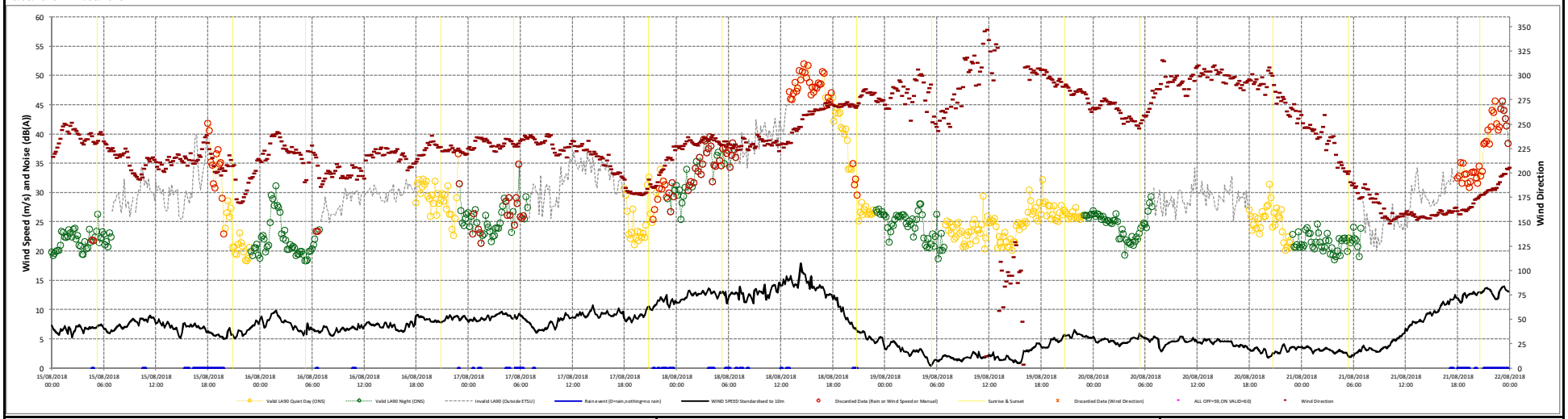

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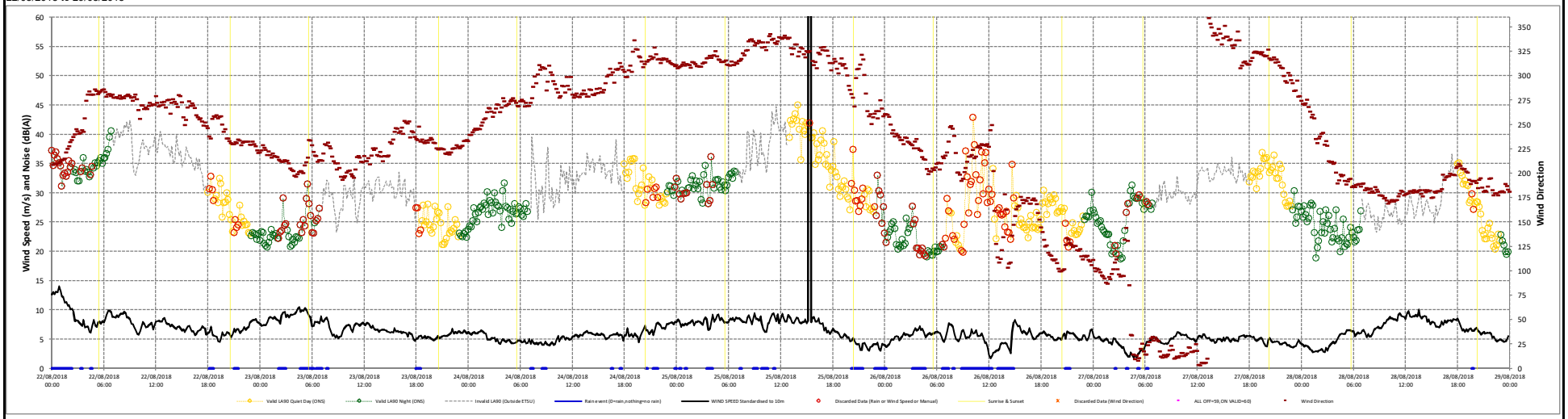
22/08/2018 to 29/08/2018



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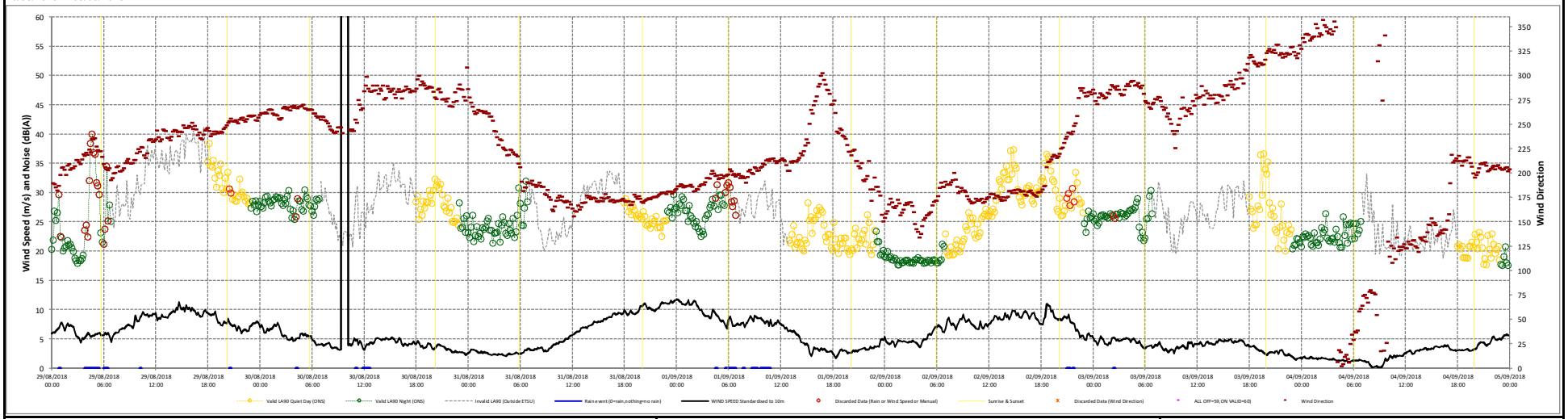

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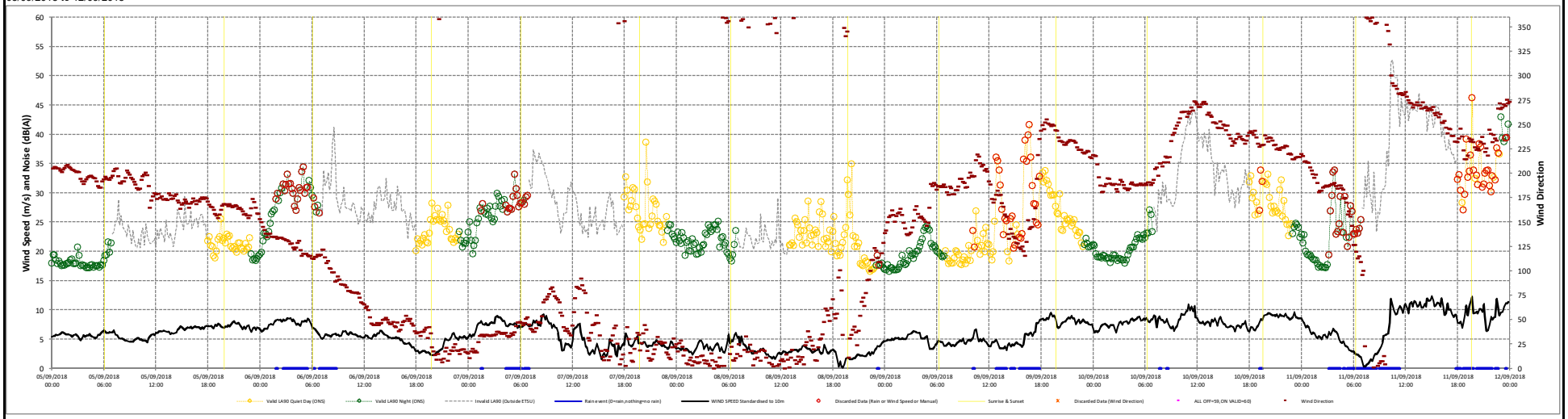
Title	Figure A5.1a: Time Series for Haa Buttons(ONS) Page 5 of 7
Date	18/10/2018

05/09/2018 to 12/09/2018



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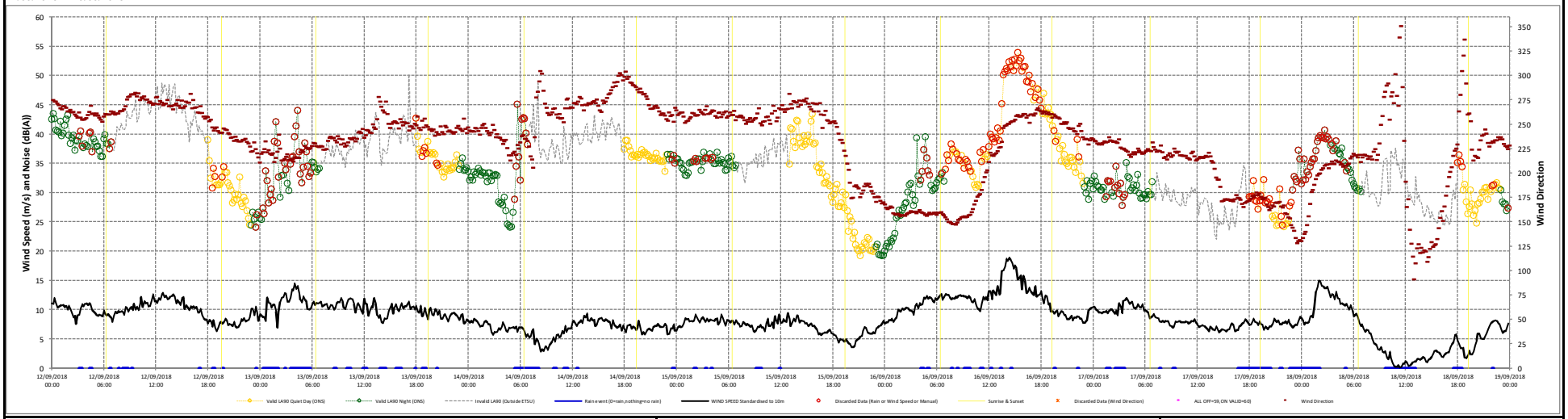

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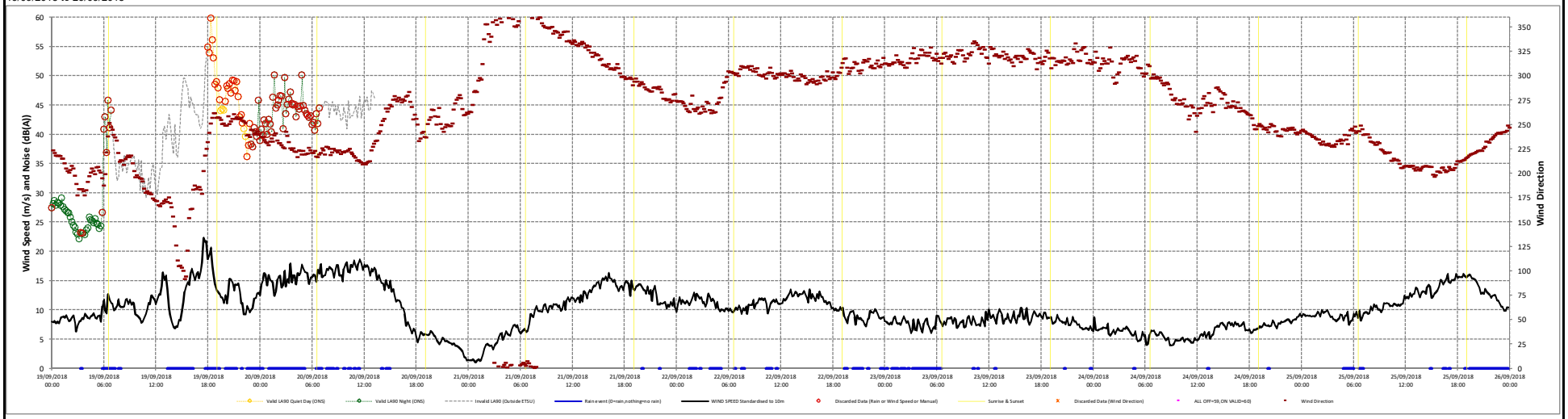

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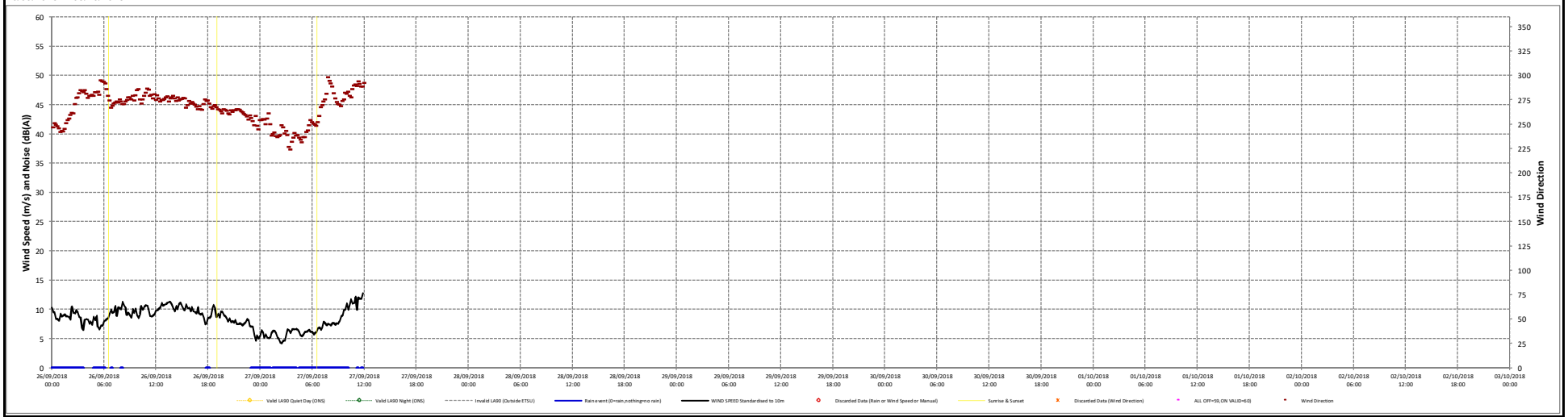

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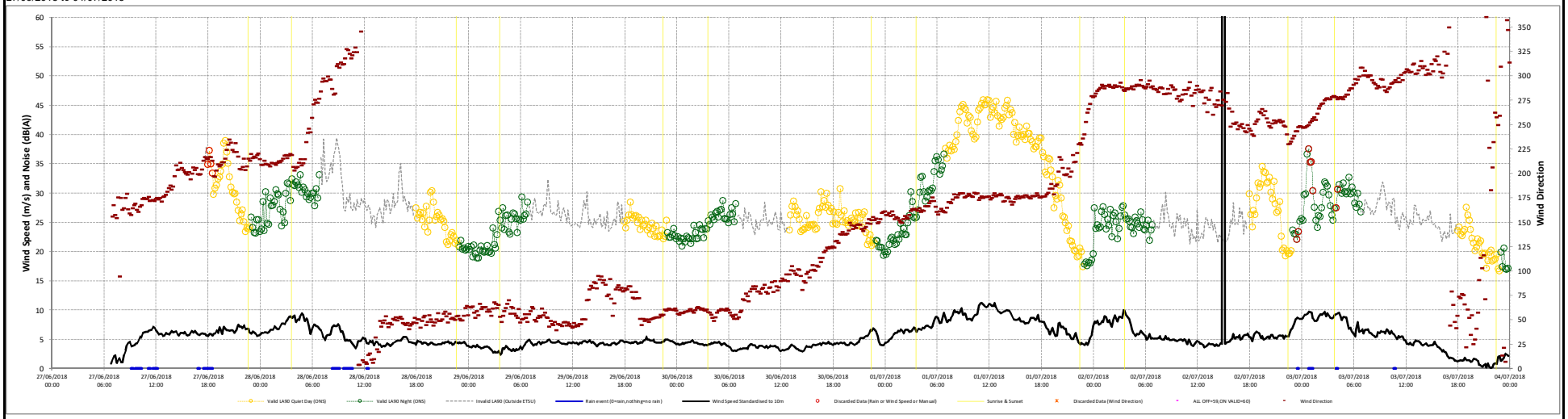
Date	18/10/2018

27/06/2018 to 04/07/2018



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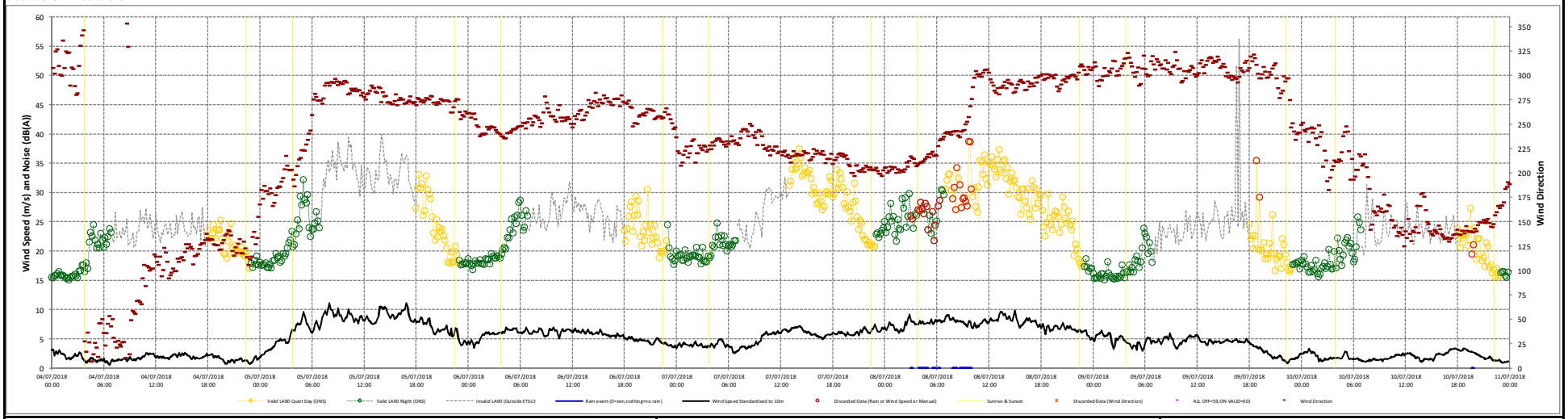
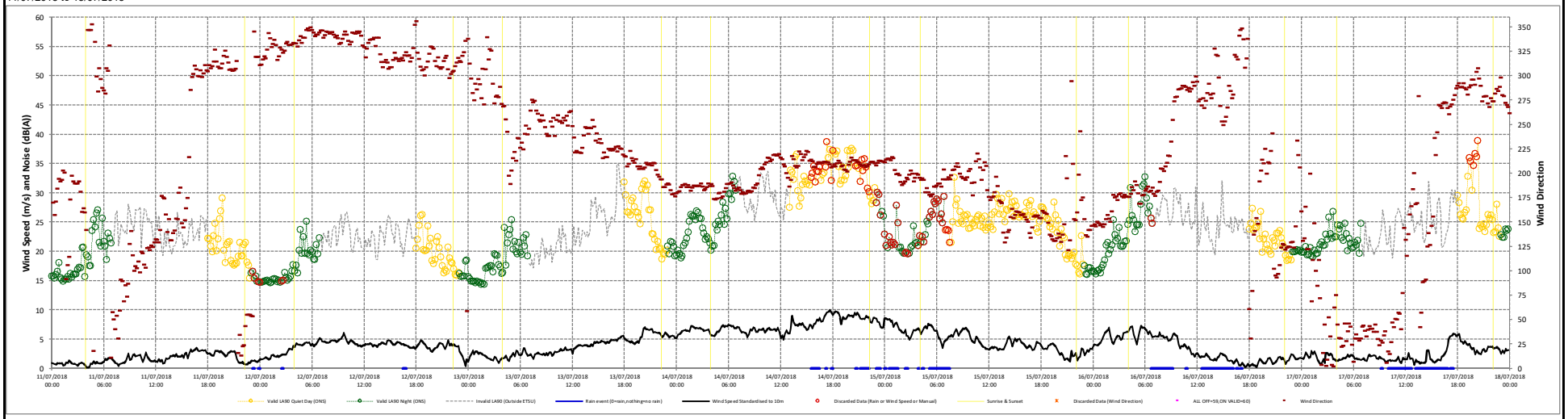


Project	Viking Wind Farm
Client	Viking Energy Wind Farm LLP
Title	Figure A5.1b: Time Series for Grunnafirth(ONS) Page 1 of 6
Date	22/10/2018

11/07/2018 to 18/07/2018



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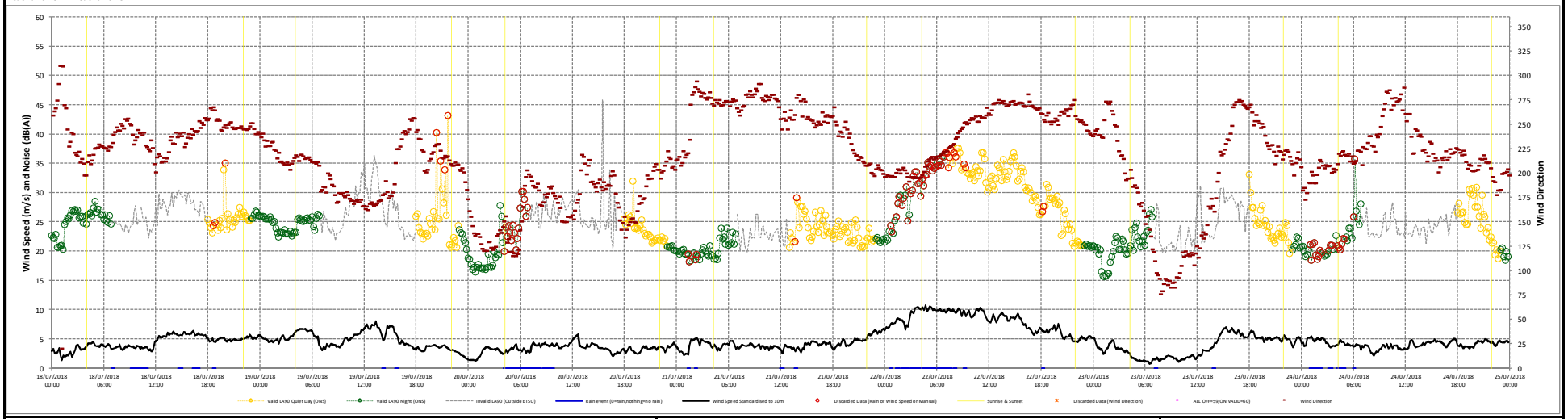

Project	Viking Wind Farm
Client	Viking Energy Wind Farm LLP
Title	Figure A5.1b: Time Series for Grunnafirth(ONS) Page 2 of 6
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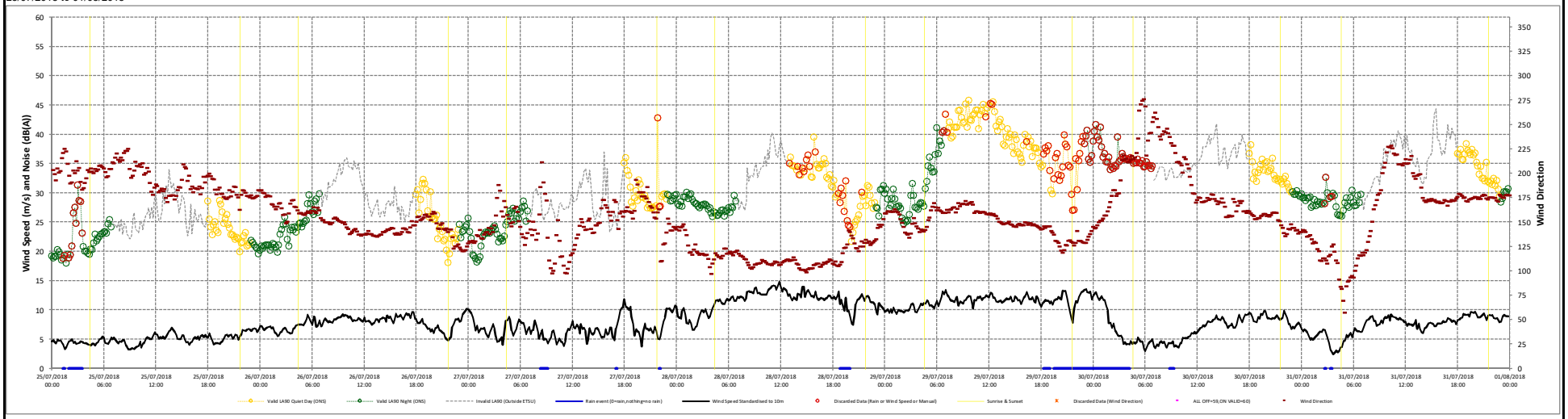
25/07/2018 to 01/08/2018



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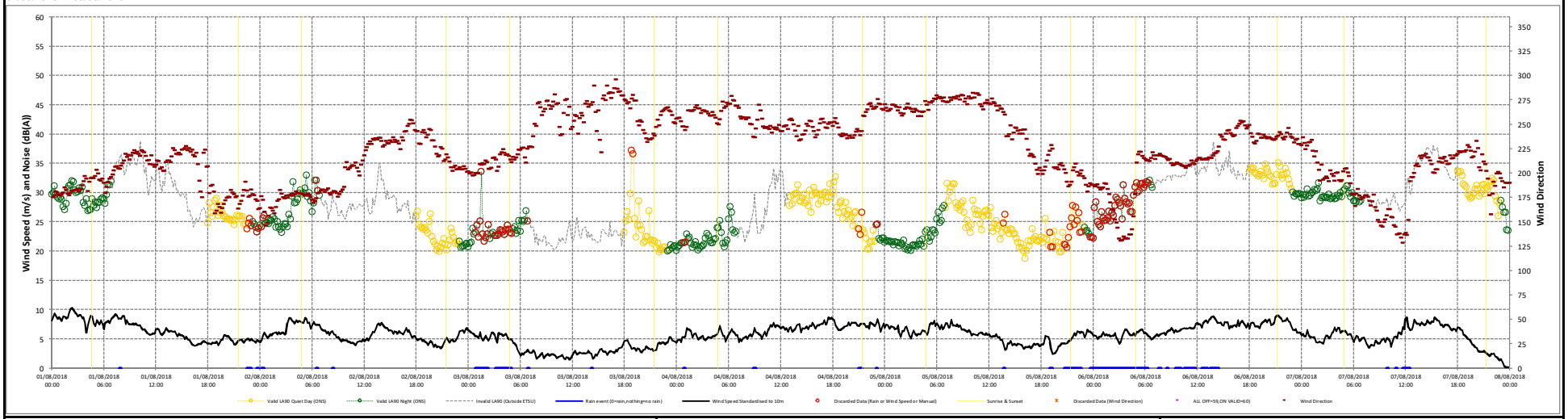

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Client	Viking Energy Wind Farm LLP
Title	Figure A5.1b: Time Series for Grunnafirth(ONS) Page 3 of 6
Date	22/10/2018

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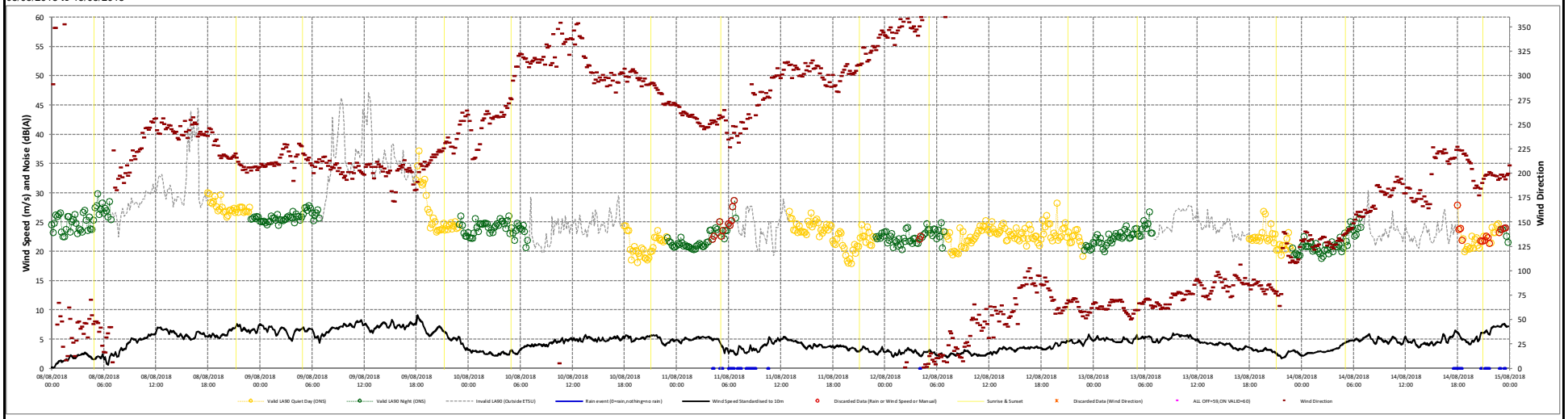
08/08/2018 to 15/08/2018



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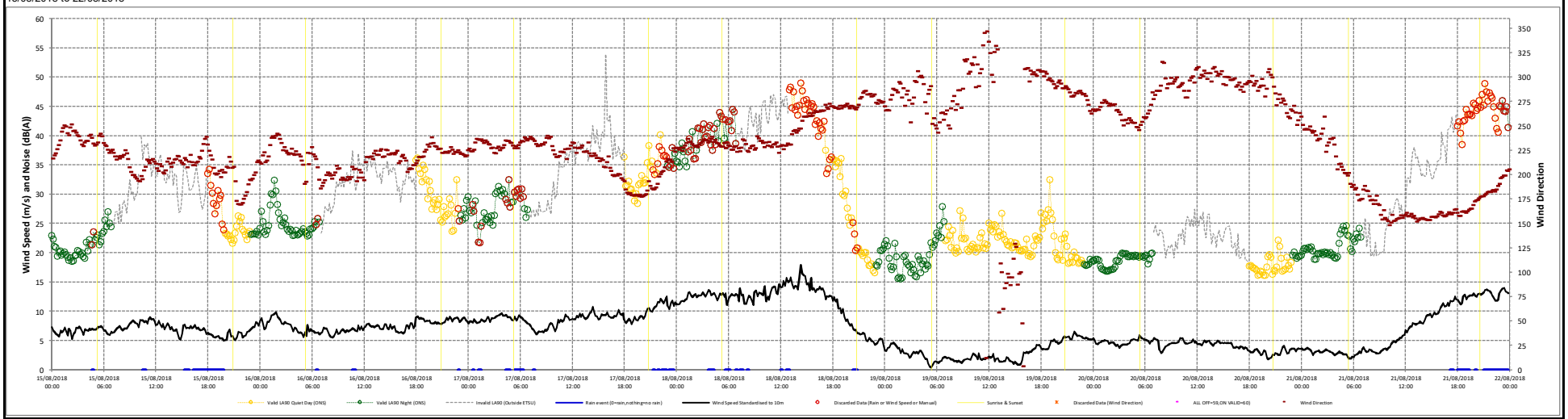

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Date	22/10/2018

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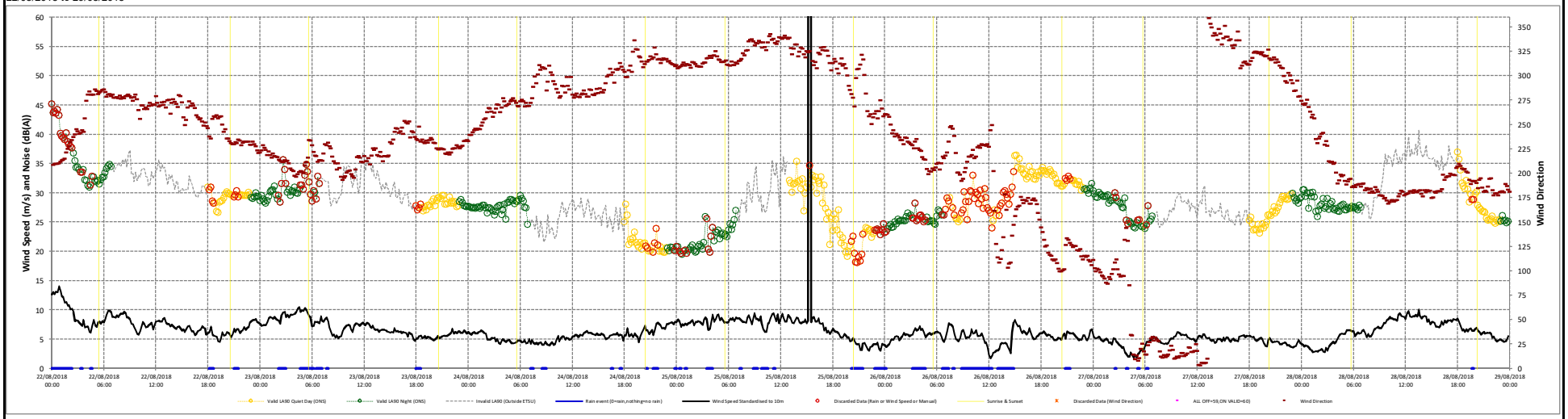

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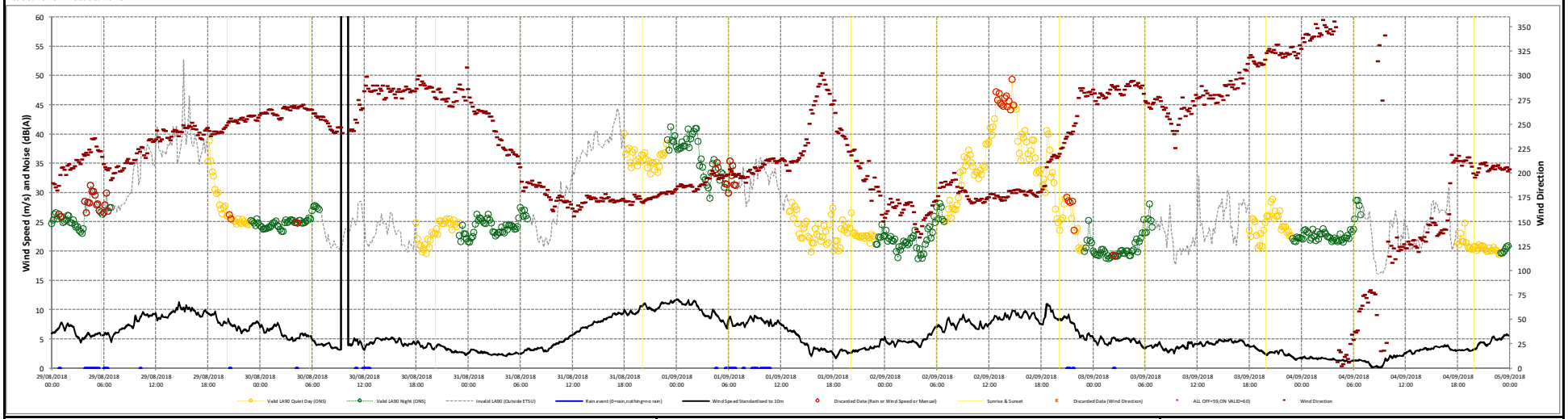

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Title	Figure A5.1b: Time Series for Grunnafirth(ONS) Page 5 of 6
Date	22/10/2018

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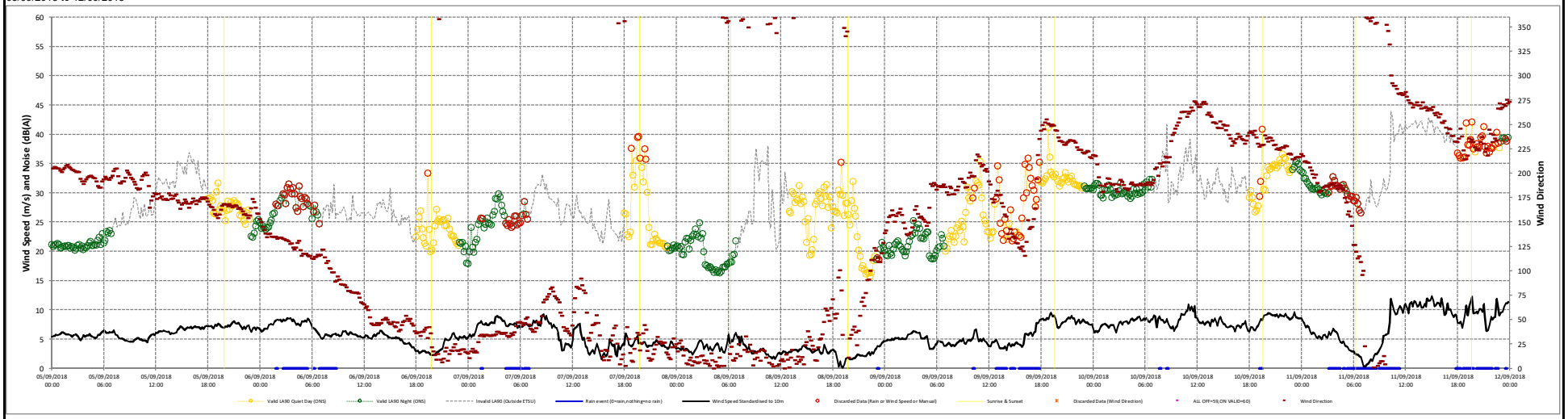
05/09/2018 to 12/09/2018



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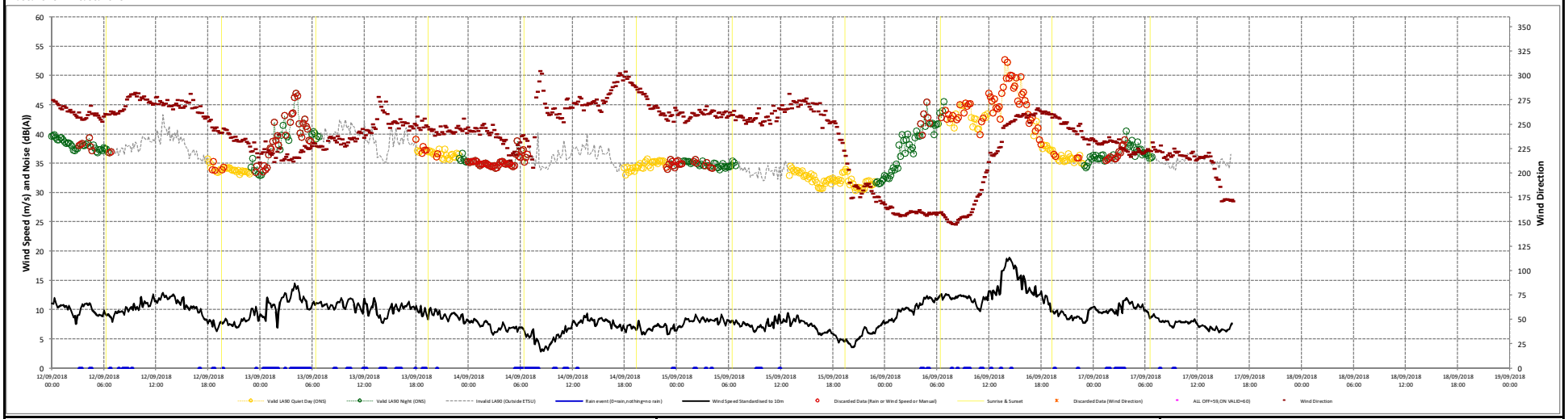

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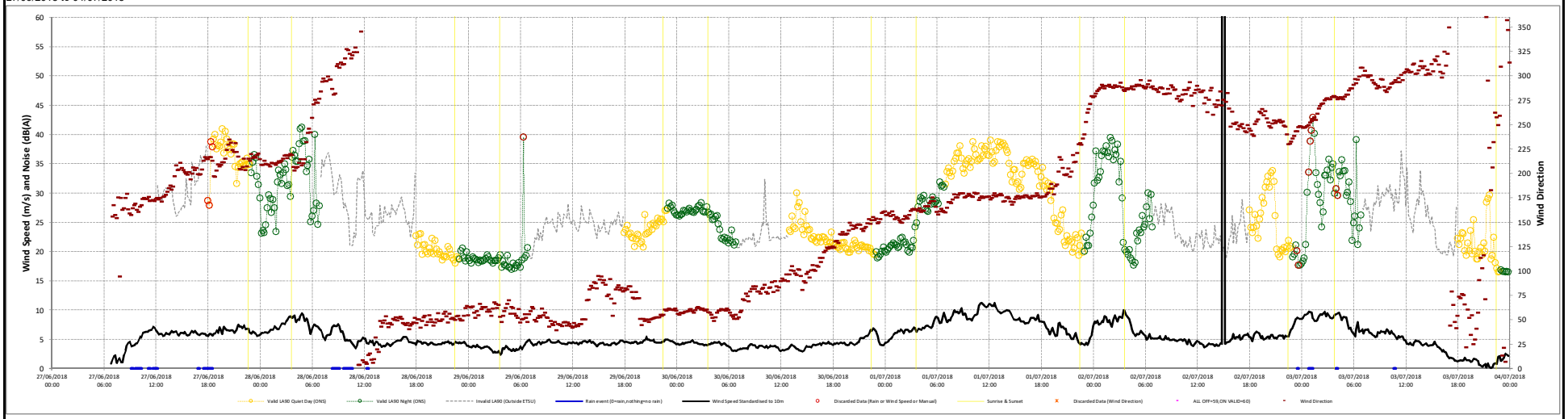

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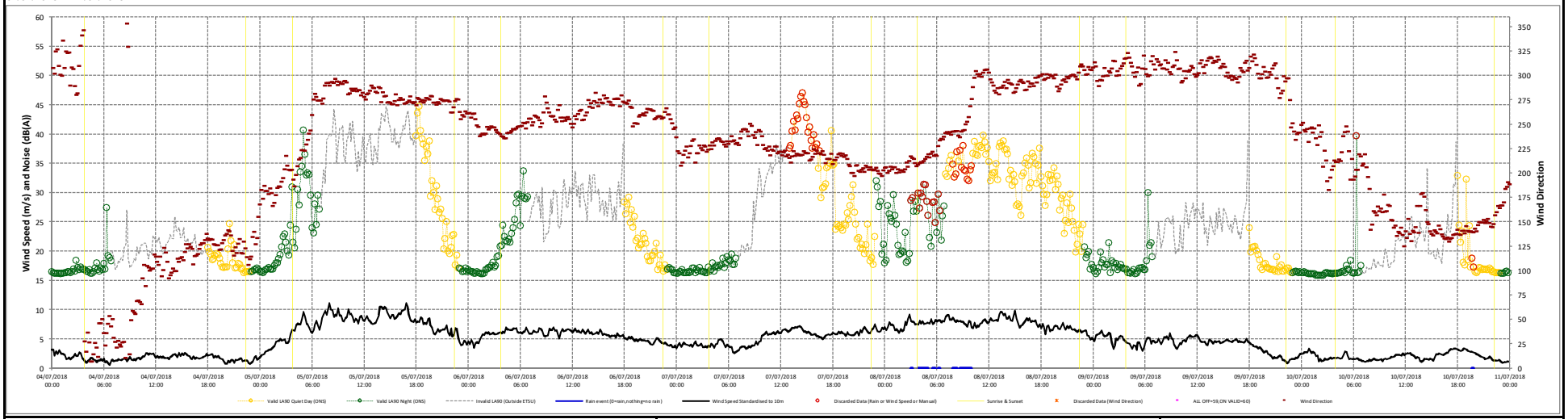

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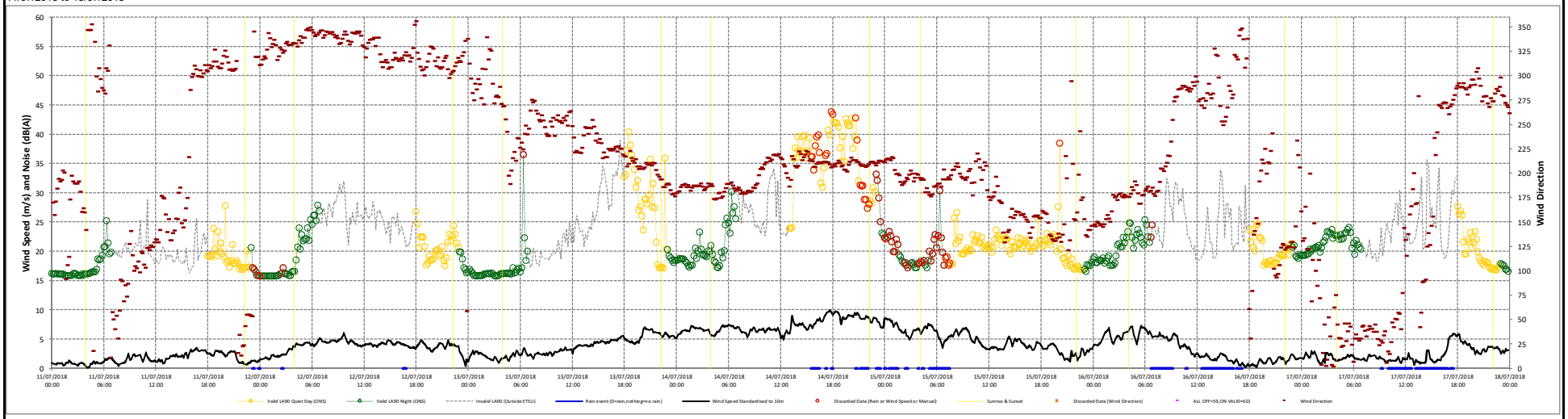
Title	Figure A5.1c: Time Series for Hamelea(ONS) Page 1 of 7
Date	22/10/2018

11/07/2018 to 18/07/2018



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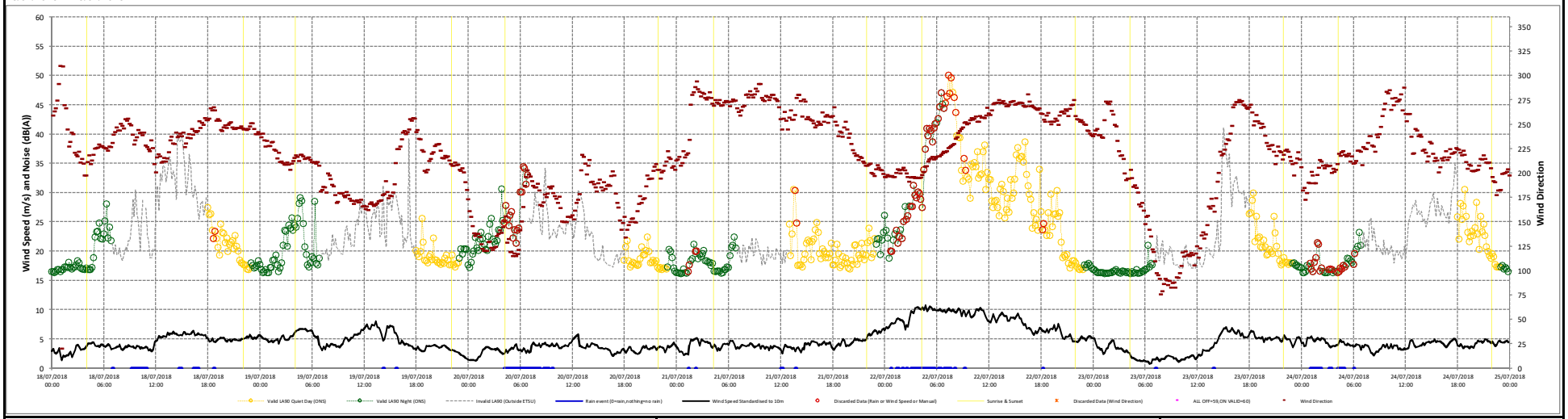

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Title	Figure A5.1c: Time Series for Hamelea(ONS) Page 2 of 7
Date	22/10/2018

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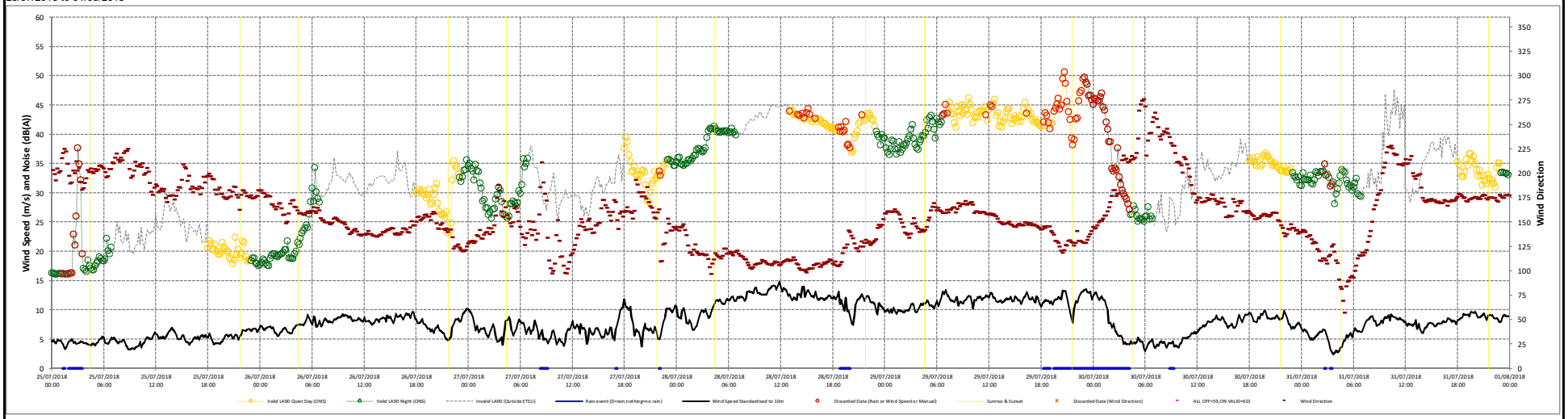

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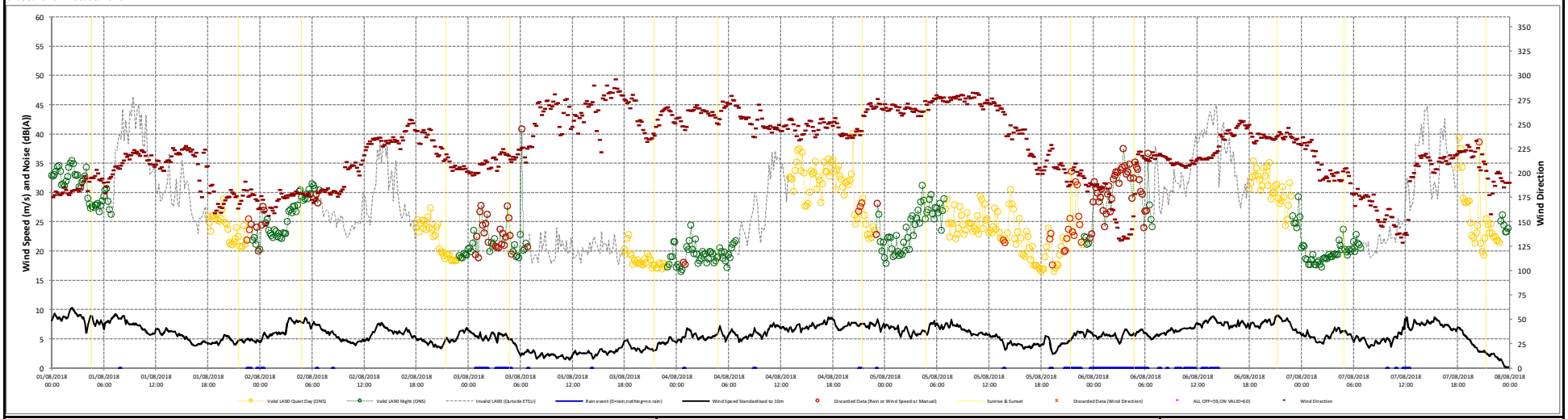

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Date	22/10/2018

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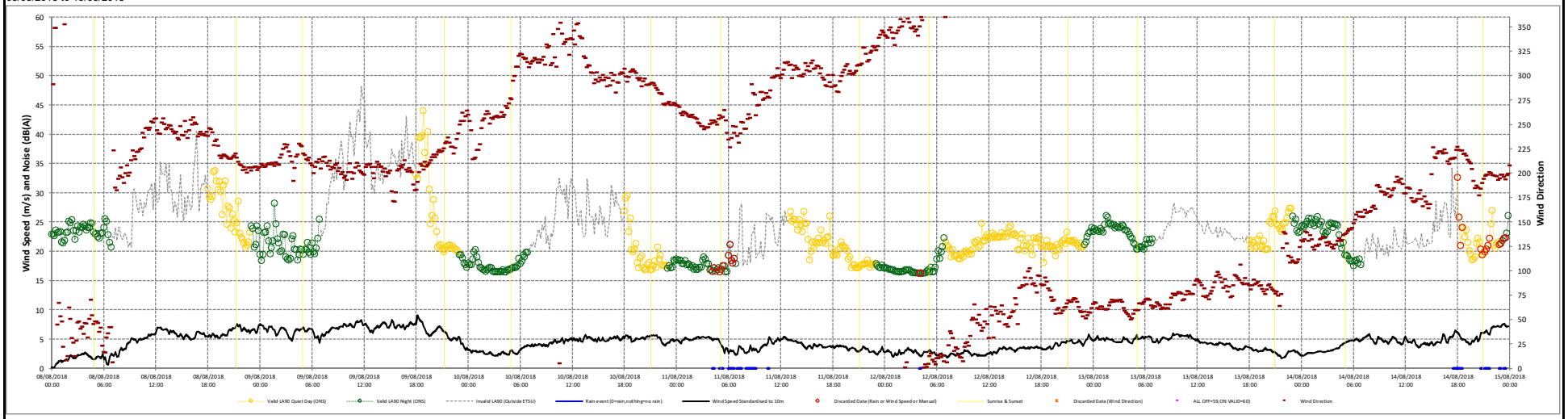

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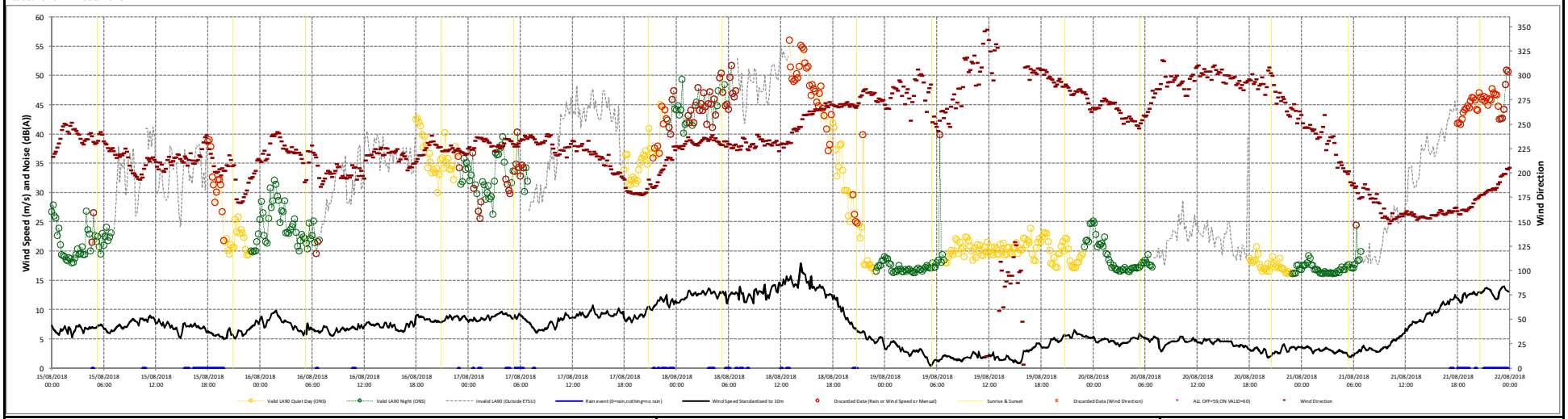

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Title	Figure A5.1c: Time Series for Hamelea(ONS) Page 4 of 7
Date	22/10/2018

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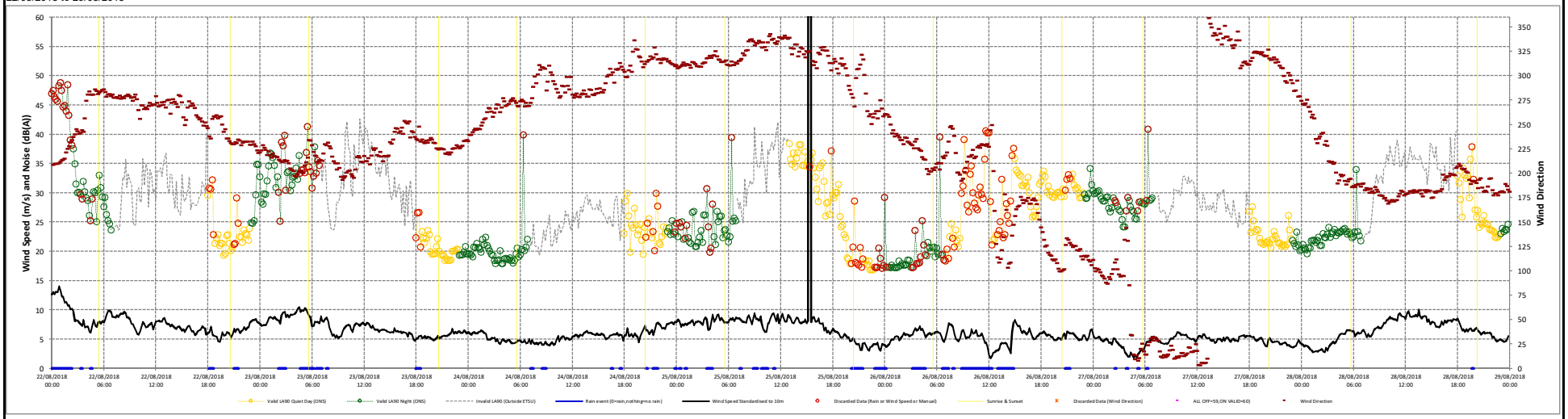

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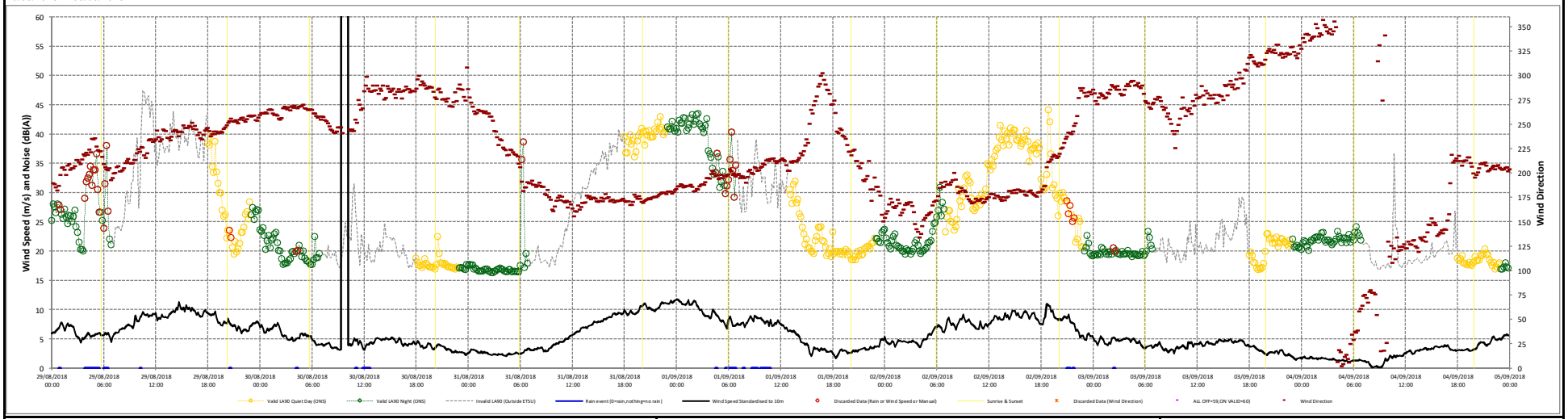

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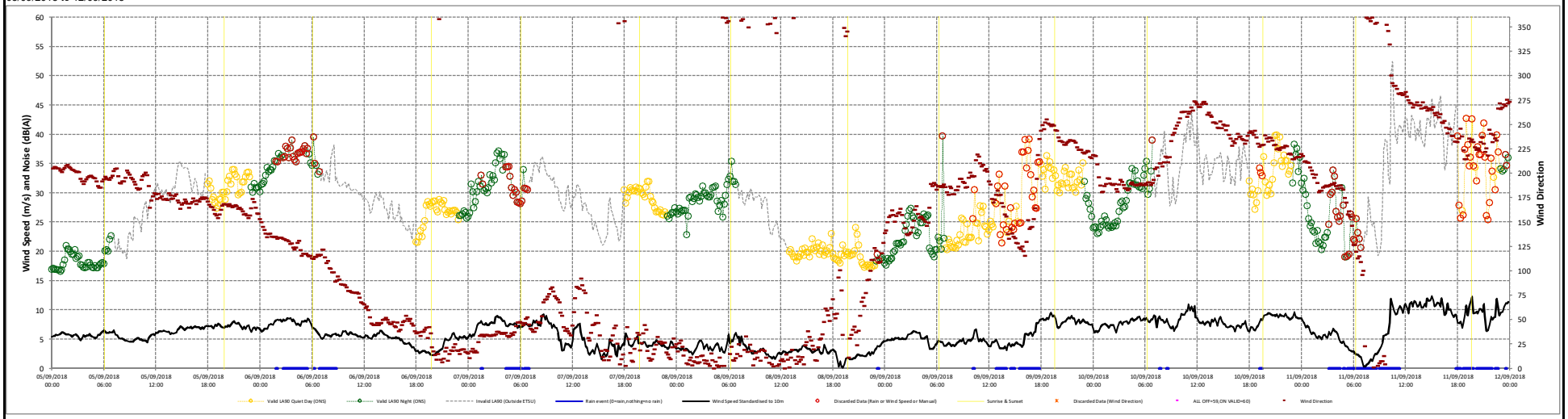
Title	Figure A5.1c: Time Series for Hamelea(ONS) Page 5 of 7
Date	22/10/2018

05/09/2018 to 12/09/2018



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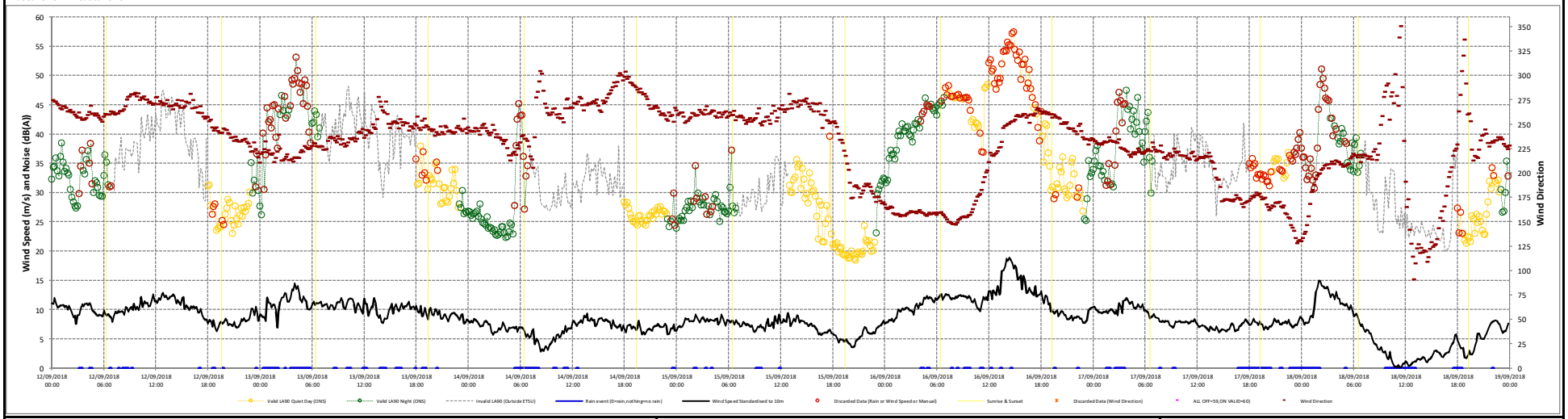

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Title	Figure A5.1c: Time Series for Hamelea(ONS) Page 6 of 7
Date	22/10/2018

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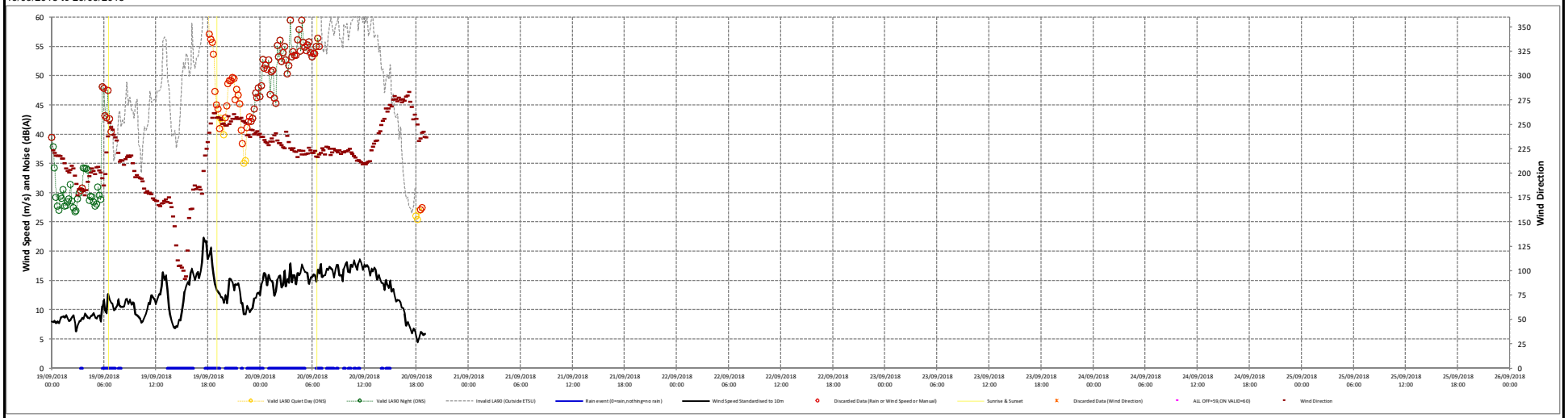

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Title	Figure A5.1c: Time Series for Hamelea(ONS) Page 7 of 7
Date	22/10/2018

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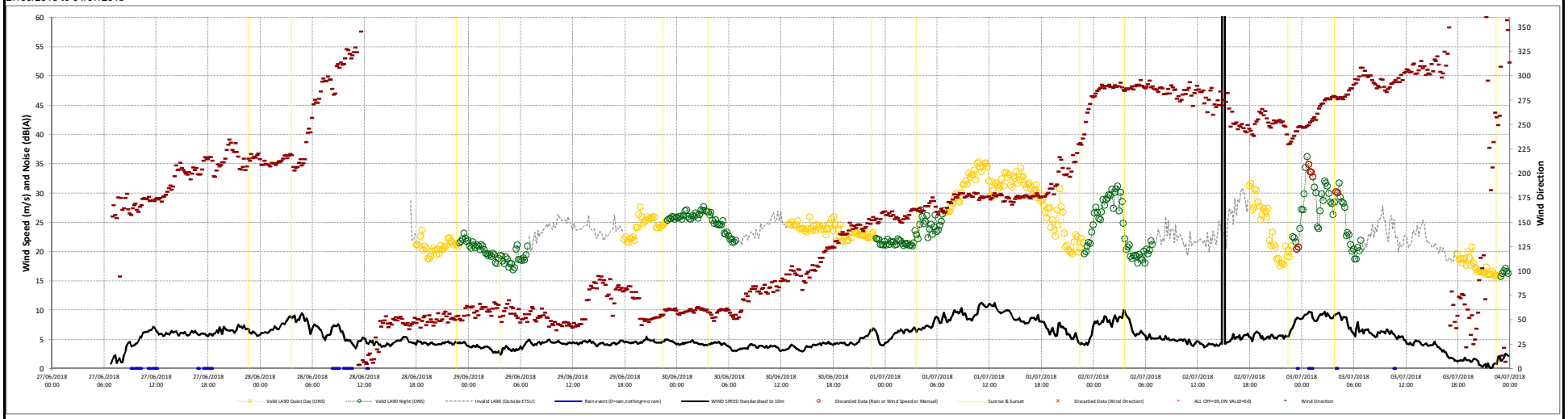

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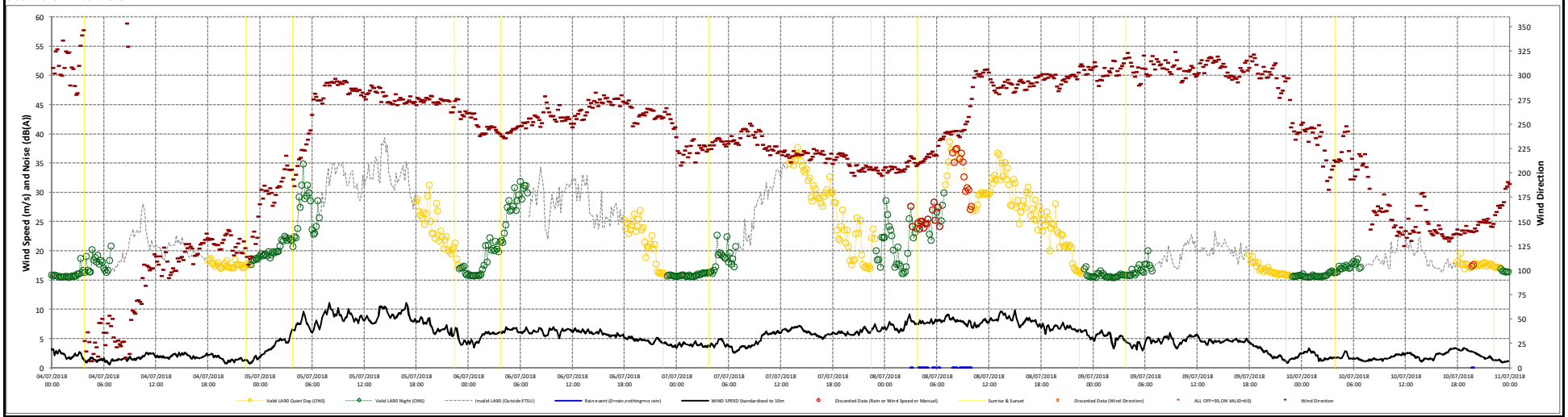

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Client	Viking Energy Wind Farm LLP
Title	Figure A5.1d: Time Series for South Newing(ONS) Page 1 of 6
Date	22/10/2018

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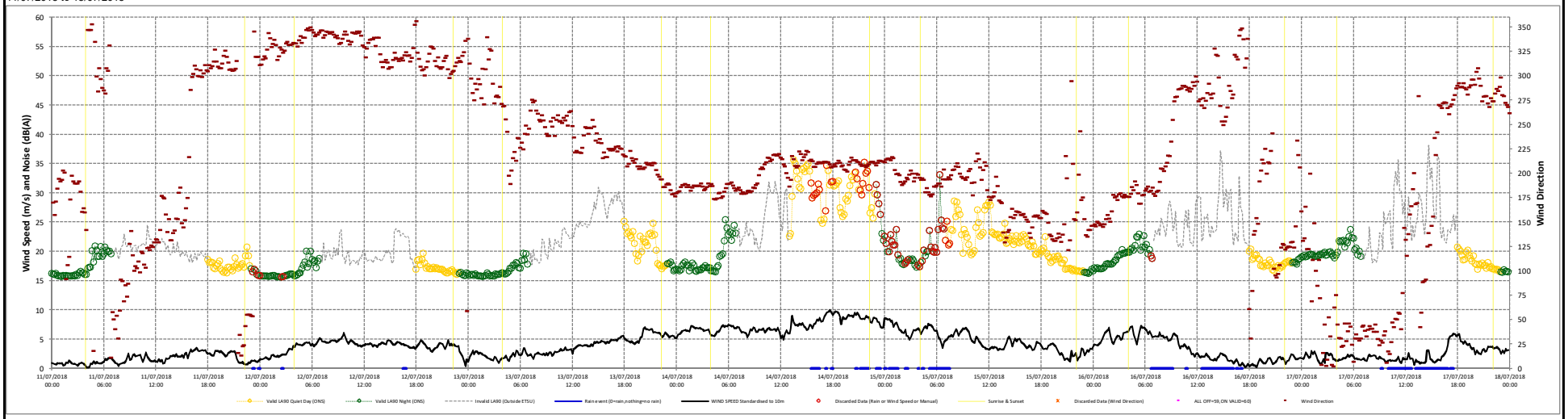

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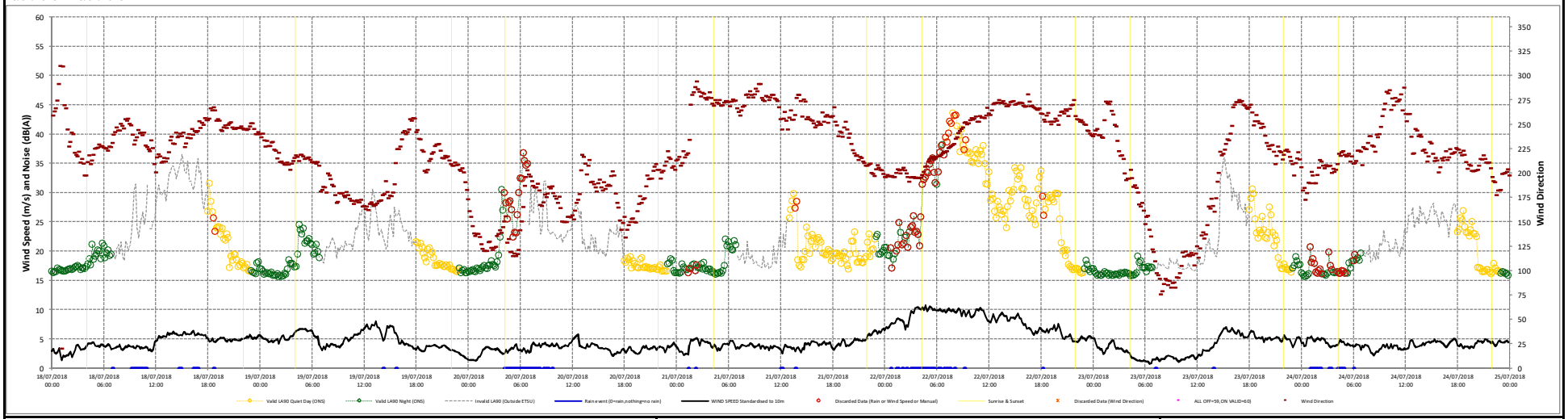

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Client	Viking Energy Wind Farm LLP
Title	Figure A5.1d: Time Series for South Newing(ONS) Page 2 of 6
Date	22/10/2018