

VENUS ASHEN LIGHT

(Superior conjunction on last 2012.06.06th)

1- Abstract :

80 drawings (27 days) were performed this present opposition with 100-305mm apertures (from March 2012 until August 2012).

Venus exhibited from the April 2012 to July 2012 period some ashen light occurrences accessible visually with the help of light coloured filters (blue to red filters and often the OIII and R tricolor that covers the H α ray).

Almost featureless at the beginning with average apertures, the ashen light was captured in different colour domains, surprisingly sometimes in blue colour area then more consistently clearer in green (OIII) and red (R tricolor) lights.

Markings on the dark side were collected at some periods without apparent relation with the planet phase or something more evident. The dark markings from a day period to another were in good shape and at the same similar locations. With the time being they seemed to move slightly. This conducts to think that they were ground features.

Clear bright patches appeared on the dark side at the beginning period of observation and were not collected again after.

The observation period seemed to be not a main parameter for collecting the ashen light as this was captured during night, dawn light and day light, the sky transparency at the contrary is a main topic and this needs to be pure sky.

However, some pic intensities of ashen light were noted and this is a fact to be considered.

The occurrence of the solar wind interacting with the planet atmosphere would be interesting to study through correlations. The writer does not have these data available.

Mainly the solar wind interaction would have an effect of the light amount observed with the OIII filter.

2- Main topics:

2.1- Parameters and observations:

Essentially 2 parameters were taken for the understanding the ashen light intensity:

- Step intensity levels: 4 steps were taken for classification of the light intensity and quoted from a day to another. The level 3 was given when the intensity was captured say a t a first look.

What is remarquable is the fact that the intensity was stronger 30 days around (35° Elongation E) before the superior conjunction and around 15 days after (25° Elongation W). This phenomenon is concerning more or less all the colour channels of observations. The observation results without filtering follow the same pattern.

It is difficult to say more because a lack of observations of 20 days before the superior conjunction was interfering with the results.

- Surface extension on the dark side: the ashen light extension ratio is expressed in terms of the light occupation on the dark side with the total dark side surface seen at the eyepiece. This is a just an indicator as the ratio is calculated from the 2D drawing surface and this should be pondered with the surface of the sphere area lighted or not by the ashen light on the accessible dark side from earth.
It is interesting to note for all the colour channels the same evolution shape of the lighted surface.
A first pic was noted 37 days before the superior conjunction, a second 28 days a third 29 days before. However these fluctuations may come from the observational conditions. Without consideration of those picks, the global pic intensity of the group occurred 30 days before the superior conjunction.
The same tendency occurred around 15 days after with also fluctuations in light intensity extension.

Blue colour observations:

Normally the planet disk on dark side should be featureless in that field. However, this was well noted at the beginning of the observations. The few results followed also the same shape pattern of the light curve fluctuations compared with the other colour channels.

This colour channel of observation is important to be followed as no theory is involving lighting in these fields.

2.2- Comments:

In spite of the few reports, the coverage needs to be improved in order to verify some assessments suggested above through the "events" observed. This would make stronger some approaches brought here.

The weather was not cooperating before the superior conjunction; this was not possible to see if fluctuations of light intensities occurred again.

What is obvious:

- ashen light is not in relation typically with the light colour channel,
- ashen light follows the similar shape pattern in different colour channels (B, G, R), observations without filter would be enough for the least,
- ashen light exhibits pic intensity around 30 days before conjunction and around 15 days after. This needs indeed more coverage for being more accurate and to perform surveys on next superior conjunctions for confirmation through a larger coverage.
- ashen light was accessible when the planet phase was 0.31 before and 0.37 after superior conjunction.

Hope the next conjunctions will occur in relation with better weather local conditions. Only 20% of the time was usable for the survey. This is not enough as for some periods a daily basis observation program is needed (during the light fluctuations) for understanding what is happening more exactly.

What is remarkable for conclusion is the fact that a colour channel is not emerging more than the others.

This involves the conclusion that explanations bring by some like water vapour presence interacting with the solar wind and OIII light reinforcement or excess in red light due to thermal planet activity cannot be supported by these results.

It is rather here a matter of solar light diffusion into the dark side part of the Venusian atmosphere noted at the eyepiece because of the large colour channels observed. This could be the better explanation.

Anyway the thermal activity of the ground at 450°C in average will never explain an excess of red light at the R channel except by a chemical processus occurring in an atmosphere layer with specific conditions elevating locally the physical temperature.

Therefore dark markings and clear markings noted are either these holes of temperature lacks or ground features. As dark markings seemed to rotate with the planet ground this should be rather ground features.

3- Future survey:

A daily or bi-daily basis program needs to be undertaken for more accurate results.

This should be performed with:

- Observation times: during day, dawn before sunset, dawn after sunset,
- Conditions: as possible when the sky is transparent,
- Colour filters: B W80A, G OIII or W56, R tricolor or W29, without
- Exit pupil diameter: around 1.5mm,
- Apertures: 100mm min, 150mm perfect strongly baffled, not sun lighted and for getting fixed images easily,
- If possible, the use of 2 different apertures at the same times (the use of the 50mm refractor get some surprisingly results).

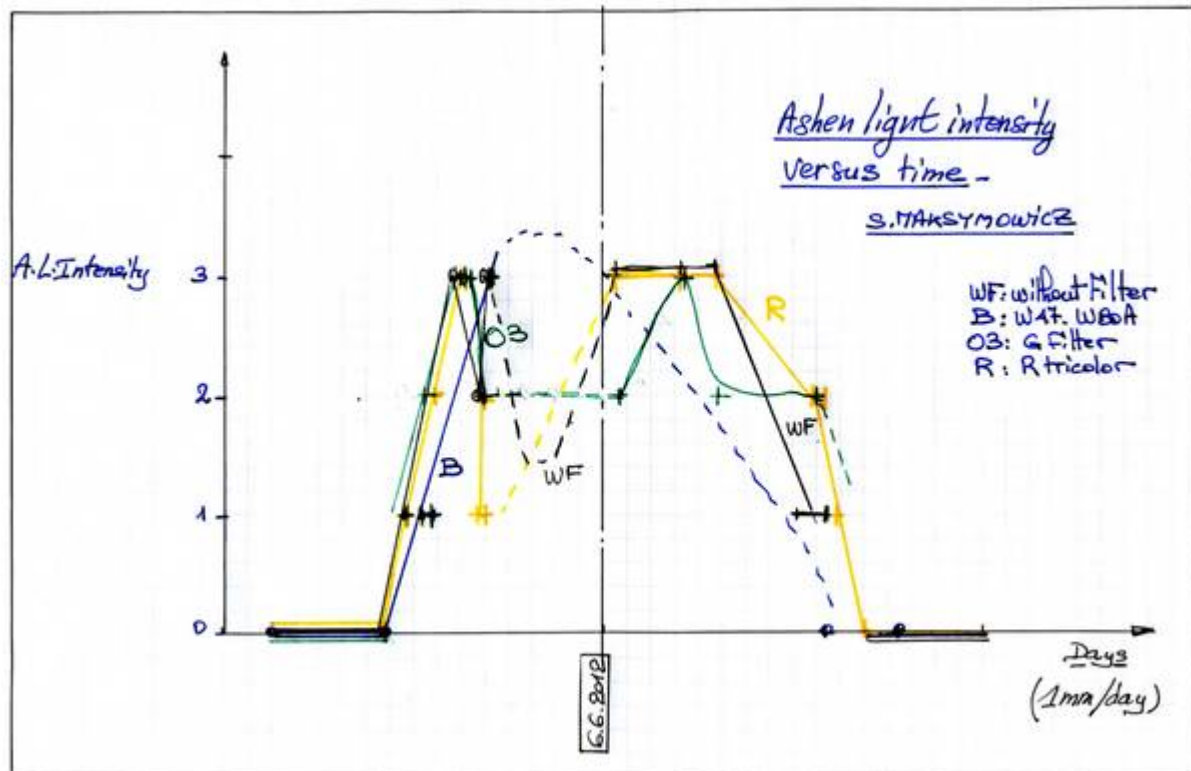
The more data we collect would contribute for research of convergences.

Please refer to the attachments:

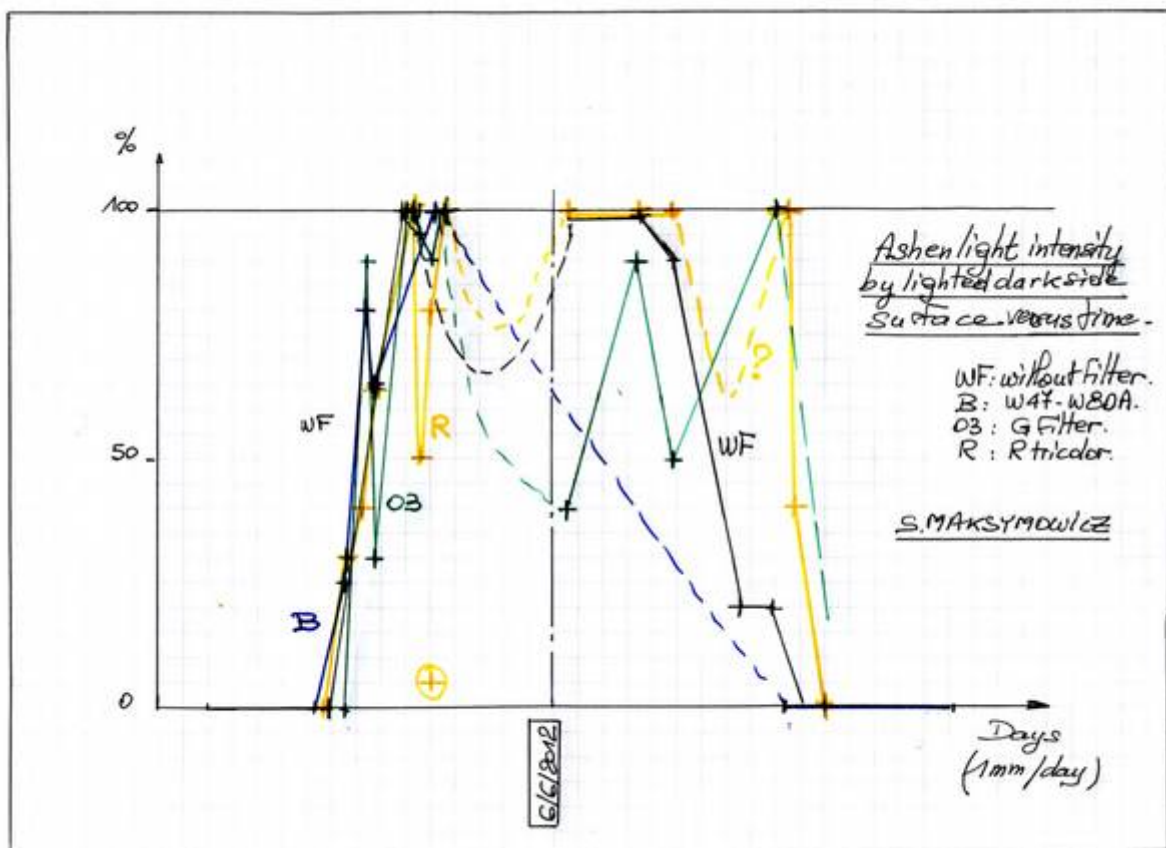
- ashen light data Venus superior conjunction 2012,
- graphs of ashen light intensities versus time,
- data drawings performed, jpg files.

Stanislas Maksymowicz
Ecquevilly- France,
BAA member n° 32334
Venus section.

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Graph for representing the ashen light intensity in four level steps with the time.



Graph representing the ashen light extension on the dark side with the time.