

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

STANDING COMMITTEE ON OBSERVATIONAL ACTIVITIES

AURORA SECTION

Bulletin No. 4

To obtain more information from our aurora observers and to establish an R.A.S.C. auroral data file, this bulletin describes two summary forms. These can easily be duplicated by Centres or individual observers and are intended as a supplement to, not a replacement for, the present N.R.C. aurora report form.

MONTHLY AURORA SUMMARY: At the top, the name of the observer, month and year, station or location where the observations have been made, and the time used during the entire month should be given. Below this, a list of standard symbols is found for use singly or in combination.

In the main section, observational data should be entered - across the page are columns for the various hours of each night, down the page are rows for the days of the month. For each hour of the night when an observation has been made, an appropriate symbol should be entered along the daily rows.

Four examples are shown:

- On July 5-6 the sky was clear between 22h and 02h. Twilight interfered with observation until 23h, after that no aurora was seen during three consecutive hours of observing.
- On July 10-11 the sky was overcast between 22h and 00h. Between 00h and 01h the sky partially cleared but the northern sky was still clouded over. During the next hour the sky was partially cloudy all over, and by 02h the sky had again become overcast.
- On July 22-23 a weak aurora was observed prior to 23h and again after 00h. No observation was made between 23h and 00h.
- On July 23-24 the sky was partially cloudy between 21h and 02h. The north was clear during most of this interval but no aurora was seen before 22h due to twilight. After 22h no aurora was observed in the north until 01h when a medium aurora was noted. After 02h the sky cleared and the medium aurora continued.

DAILY AURORA SUMMARY: This is used only when an aurora has been seen and recorded on the N.R.C. Visual Aurora Report form; the display is then summarized on the daily summary form for use by an R.A.S.C. Centre Recorder or the National Co-ordinator.

At the top are spaces where the observer's name, location or station, and the time used for the observations should be entered. A short list of preferred symbols for the auroral forms and their intensities follows.

The main portion is for the summary of the observations. Elevations indicating the position of the aurora relative to the northern horizon appear across the top. Angles larger than 90° are south of the zenith, 180° is the southern horizon. Times of

observations should be entered in the left-hand column; four per hour should suffice. Observations need not be made on the quarter hours, but these are preferred for ease of comparison among observers. The right-hand column is for remarks on colour, motion, time of greatest activity and time of transition between forms. Examples follow:

- Aurorae with lower borders at elevations between 0° and 10° are listed in the first column, as at 19:15 and 19:30 when a medium intensity glow was seen at the northern horizon.
- Aurorae with lower borders between 10° and 14° are listed in the second column. The only entry shows no aurora in this region at 19:15, at 19:30 the glow to the north had spread above 10° but since the glow was listed in the 0° to 10° region, no separate listing of it is made in the 10° to 14° region.
- Most of the display occupied the 14° to 21° region of the sky. A medium homogeneous arc was seen at 18:00. By 18:15 the arc had a red lower border. The homogeneous arc had changed into a rayed arc with short rays by 18:45. At 19:15 the homogeneous arc reappeared, weakening and becoming very quiet by 20:00. After 20:30 no aurora was observed in this region.
- The sky between 21° and 32° contained the lower borders of several aurora. At 19:15 a medium rayed arc with fainter rays occupied this region persisting past 19:30 and observed again at 20:30 when its colour was green; at this time motion was noted along the arc moving eastward. At 22:00 a medium green yellow quiet homogeneous arc was apparent in the sky between 21° and 32° .
- At 19:30 long rays appeared in the north-eastern sky extending close to the zenith; since these rays originated near the extreme end of the rayed arc listed in the 21° to 32° region, they are noted only under the remarks column. On the other hand, rays were noted at 20:30 which were independent of all other listed forms. These separate rays are in the region 32° to 62° where their lower borders were noted.

The use of these forms should prove helpful to aurora observers, both as a personal record of their work and also for supplying data to the Society. Most Centres should be able to stencil their own versions of these; however, smaller Centres may wish to procure copies from larger Centres such as Edmonton and Montreal where aurora programs are well established.

Observers who experience difficulty with the format and use of these two forms are referred to the N.R.C. Bulletin "I.G.Y. Visual Aurora Program for Canada, General Instructions". Copies may be obtained from the Auroral Centre, National Research Council, Ottawa, or the National Co-ordinator for the Aurora Program.

Earl Milton, National Co-ordinator,
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July 1966.