

DEARBORN OBSERVATORY
NORTHWESTERN UNIVERSITY
EVANSTON, ILLINOIS

May 29, 1953.

Mr. Grote Reber
Wailuku, Maui
Territory of Hawaii
U. S. A.

Dear Reber:

Thank you kindly for your letter of June 16, 1952. I am sorry it has taken me so long to get around to answering it, but you are yourself partly responsible for this, because the data you sent me were not given in the form we usually use in physics and astronomy.

From the results you have sent me I have come to the conclusion that you obtained the refraction at 0° altitude at sea level with a value of 56!6 and that the individual nights varied from the mean by an amount which indicated a probable error of 5!2 or 9.2 %. I presume that the values derived for the individual days have not been corrected to any standard atmosphere which would take into account variation in barometric pressure, temperature, and weather vapor content in the atmosphere. If that is the case your results are very close to the ones I have obtained by photo-visual observations of the moon near the horizon.

I am sending you my results under separate cover and you may perhaps be particularly interested in the mean results for the seven individual nights which were investigated. The results I obtained (listed on p.26) show that the individual nights would differ from the mean by 8 % (probable error), when no account was taken of corrections to a standard atmosphere. If, however, these corrections were taken into consideration, we obtained a percentage error of 4 %.

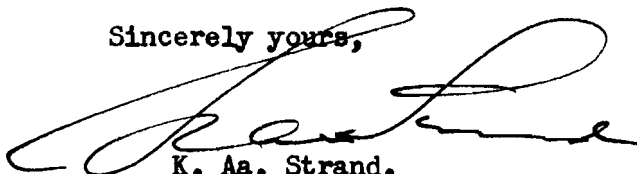
Your results, as well as mine, and also the information contained in Schulkin's paper, indicate that we can at the best expect to predict the total amount of refraction at low altitudes in the atmosphere with an accuracy of the order of 5 to 7 %.

I am most anxious to know how your work is coming along, and be sure to inform me when you will be in the neighborhood of Evanston. I do obtain some information about you from time to time through the office of the Research Corporation. I include a belated greeting from Ralph Williamson, who is leaving Toronto to work on a defense project at White Sands.

Again, my profound apology for having delayed my reply to your letter for so long, and I can assure you, now that I have found out how to interpret your data, that I feel the data obtained by you would be worth publishing in some journal, so that they may become better known. The Air Force is most interested in results of refraction at low altitudes, and they seem to be correct in their opinion that refraction at low altitudes cannot be predicted with the accuracy the astronomers often would like people to believe.

I have for some time been thinking of combining my mean results into a short paper in the Astronomical Journal. If you are in any way interested, perhaps we could work out a joint paper between your observations and what I have obtained. Anyhow, think it over and let me know in the not too distant future what you think about such a joint paper. If we act quickly on it, we may be able to have it ready for the meeting at Boulder at the end of August, in which case your data should be in my hands not later than July 10.

Sincerely yours,

A handwritten signature in cursive script, appearing to read 'K. Aa. Strand', written in dark ink.

K. Aa. Strand.

KAaS/ECV