

Meteor scattering communication

using JS8CALL and its possibilities

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It is said that "A system generates propagation studies. " (1) In this paper, I thought a new emergency communication system with latest technology.

I am running IBP/NCDXF beacon reception from three years ago. On January 04,2019 , I caught a abnormal phenomenon of JA2IGY/B. (See fig.1)

From 17 to 02 UTC (02 to 11 JST), JA2IGY/B shows obviously funny behavior for JA2IGY/B cannot see from my home. I knew it later that day is a peak of Quadrantids Meteor Shower.

In general, Meteor Scatter is used VHF bands , but my observation shows it occurs even HF bands.

In 1940s to 1950s,It was being studied possibility of low frequency Meteor Scatter to seek new communication (2) (3). and 10^{12} numbers of cosmic dust showers everyday.(4) It has been said " Poorman's Satellites". but we cannot use it for we do not have a system to use cosmic dust.

But nowadays, FT8 mode developed by Joseph Taylor et al. changes propagation with its high SNR. And it's derived mode JS8CALL by KN4CRD (5) can send a short message and relay automatically. We have already message relay system like Winkink or Pactor , however these needs wide frequency and high power , SNR is not so good. Then JS8CALL would be a good next generation emergency communication system on HF and VHF bands using cosmic dust shower, with low power and small antenna if more developed and used properly .

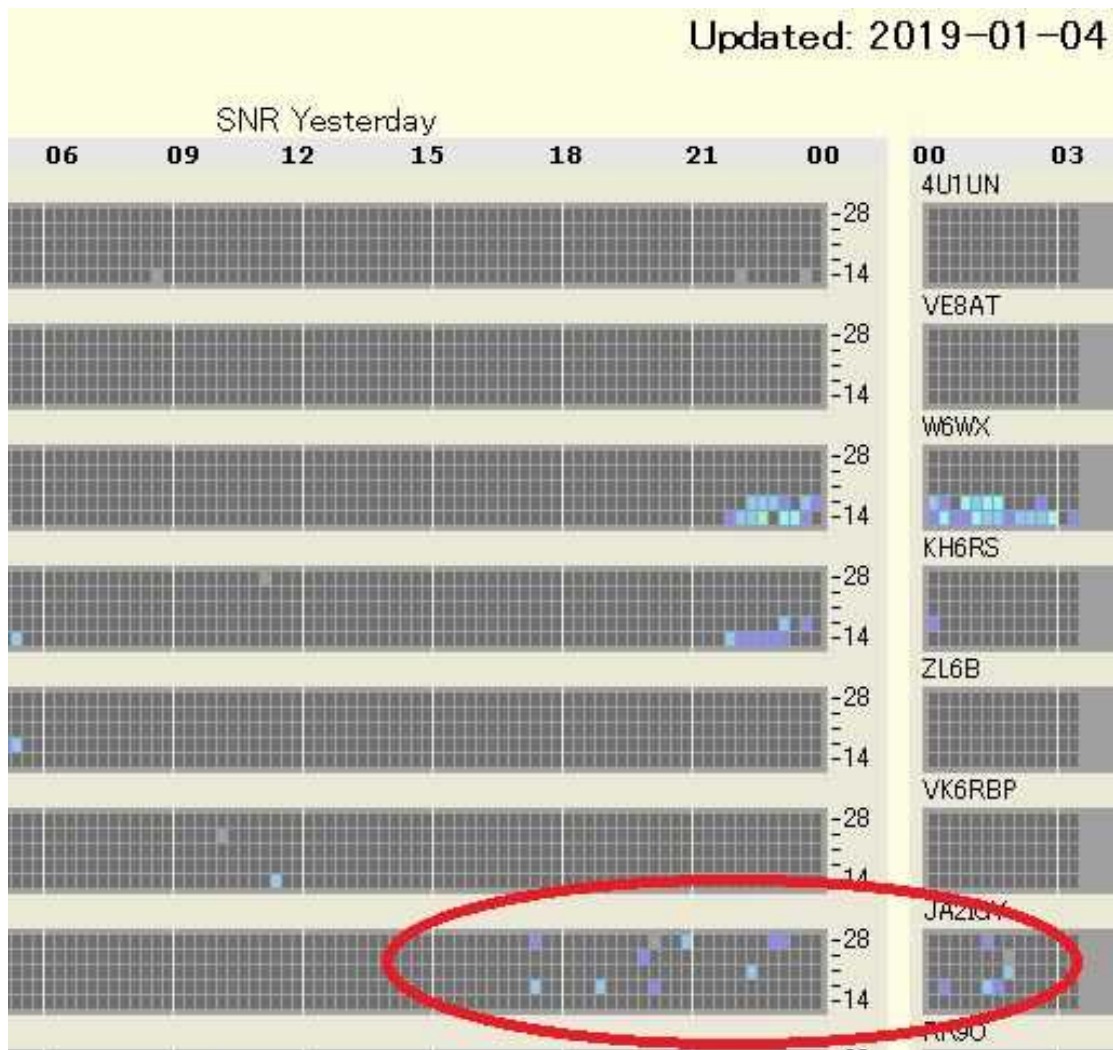


Fig 1
An abnormal reception of JA2IGY/B Beacon in midnight.

References:

(1) Ikegami Fumio; "THE BEGINNING AND THE END OF PROPAGATION STUDIES" , Japan's National Institute of Information and Communications Technology report, Dec. 1987 (in Japanese)

http://www.nict.go.jp/publication/kiho/33/005/Kiho_Vol33_SI_No005_pp043-054.pdf

(2) OSWALD G. et al. "Meteor Scatter A Newly-Discovered means for Extended-Range Communication" , QST April 1953

<https://leonid.arc.nasa.gov/GlobalMSNet/QST-April-1953.htm>

(3) W6YX; "Meteor Detection by Amateur Radio" ,July 1947 QST

<http://www.rfcafe.com/references/qst/meteor-detection-amateur-radio-july-1947-qst.htm>

(4) Fukida Akira; "Meteor burst communications~ A old and new Non-line of sight communication" Shizuoka University (in Japanese)

(5) Jordan Shere KN4CRD : JS8CALL

<http://js8call.com/>

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JF2IWL IBP/NCDXF Beacn reception page

<http://59925.org/Faros/>

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