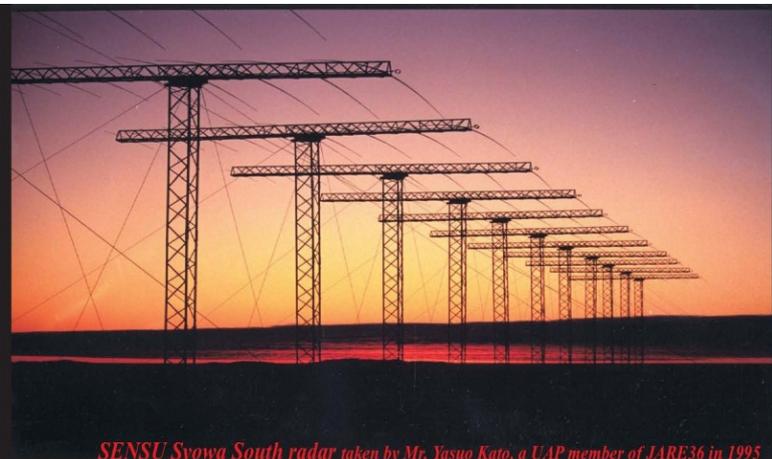
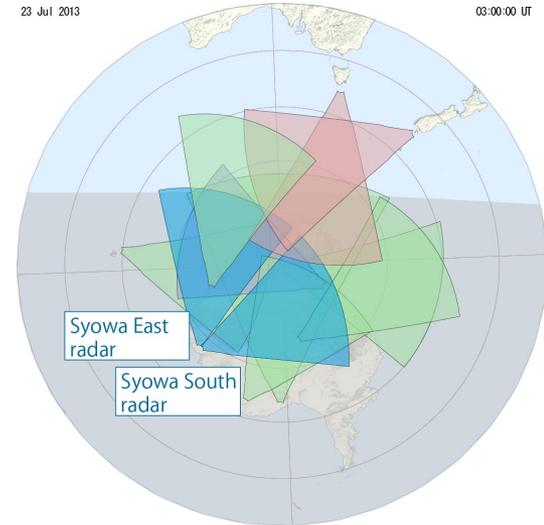
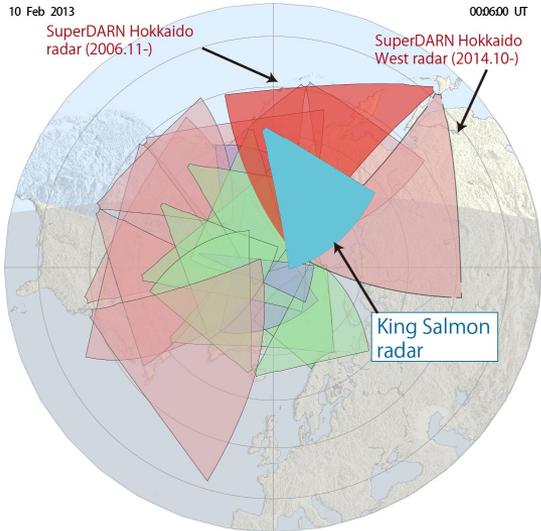


平成30年度極域・中緯度SuperDARN研究集会

2018.10.16-17 名古屋大学東山キャンパス

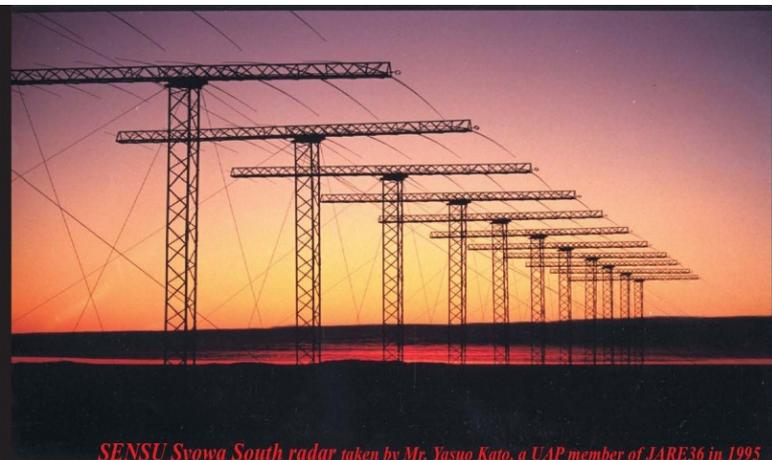
名大ISEE・国立極地研・情報通信研究機構の共催



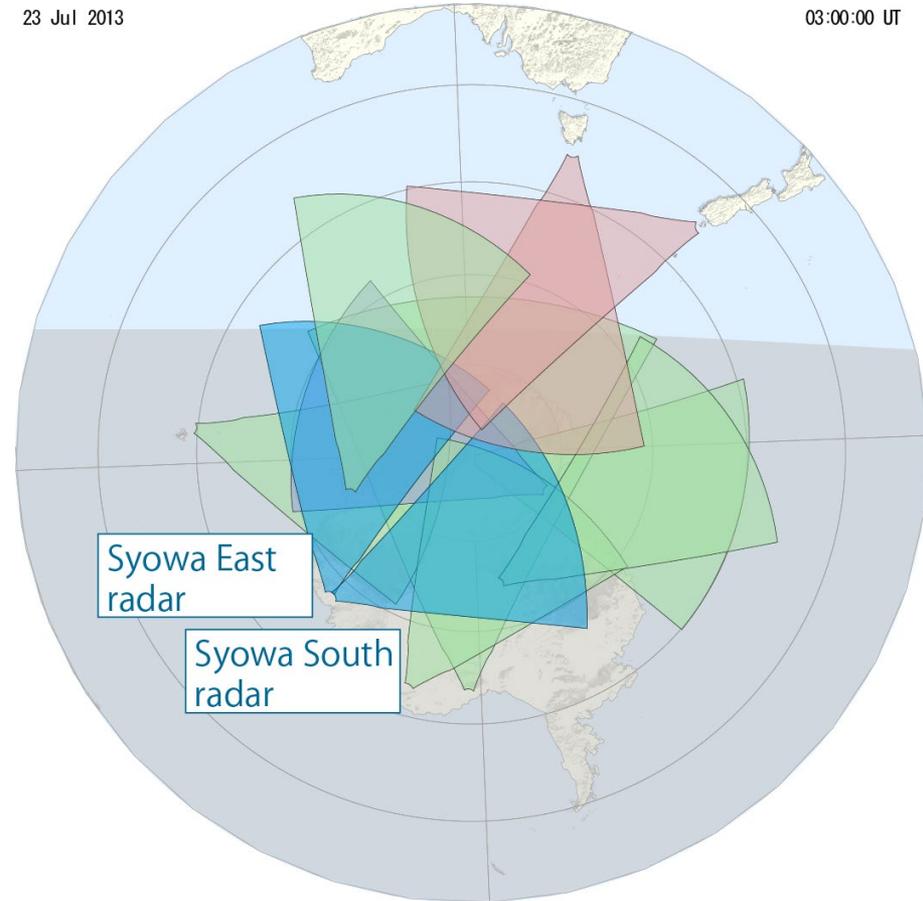
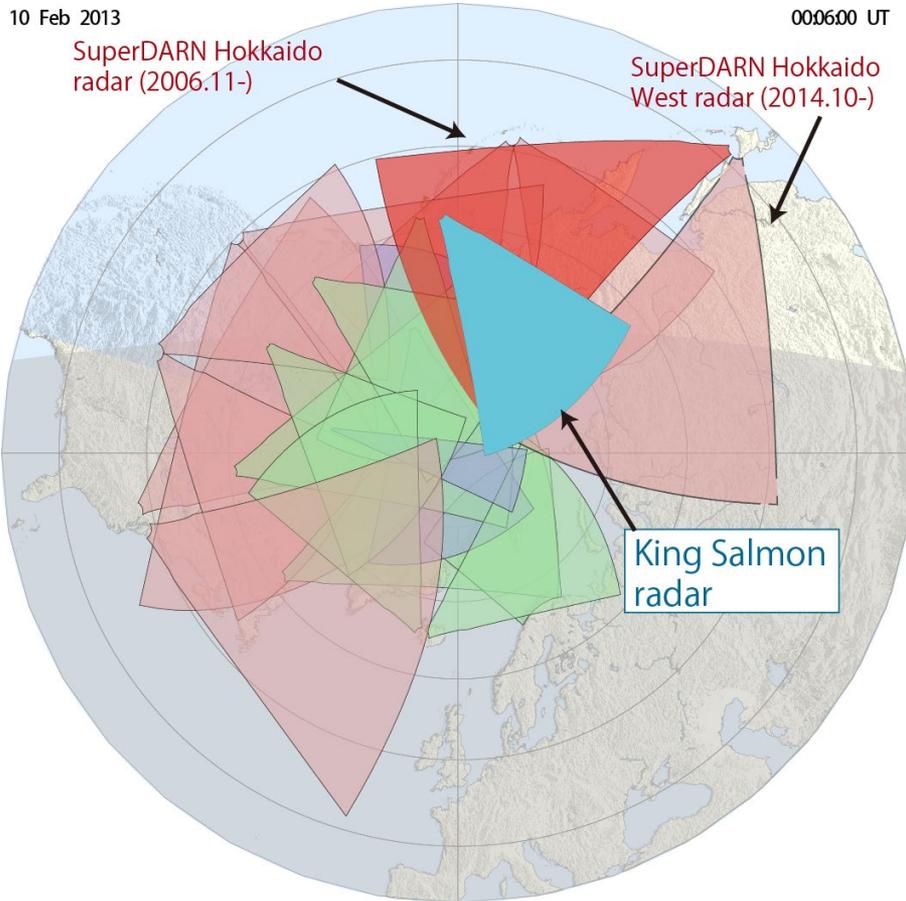


概要説明及び北海道-陸別第一・第二レーダーを中心としたSuperDARN現況報告

N. Nishitani (ISEE, Nagoya U)



Super Dual Auroral Radar Network (SuperDARN) (1995-present)



Number of operating HF radars: 36 (24 in the northern and 12 in the southern hemispheres) as of Jan 01, 2018

Standard temporal resolution: 1-2 min

各SuperDARNレーダーの動向 (主にSD2018の報告から)

- Kumming radar (中国南部)が稼働を開始したとの情報あり。これが正式稼働すれば陸別レーダーはlowest geomagnetic latitude SuperDARNのtitleを失うが、担当グループ(China Research Institute of Radiowave Propagation)の誰もSD2018に現れず、詳しい情報は不明。
- AgileDARNの最初の一基がJiamusiで稼働を開始した。SuperDARNへの加入に向けて、関係者間で準備中。
- Dome C North (DCN)レーダーが今年7月に機材を搬入し、まもなく観測を開始するべく準備中。
- Azores East / West (VT): Irelandに移行を試みるも目途が立たず、他の場所を含めて検討中。
- 南フランス(IREP/Leicester)のレーダーも周波数使用許可の目途が立っていない。
- Falkland Islands: 稼働再開。
- ロシアのエカテリンブルグレーダー: 観測継続しているもののデータ配信に課題。最初にfitacf typeデータの公開を準備中。
- Magadan East / West (Russia): 当面はpassive radarとして使用予定。

各SuperDARNレーダーの主な動向(既設)

- Iceland East / West radarが老朽化のため稼働停止中。
- 北海道-陸別第一・第二レーダー: 9月の北海道地震に伴う停電で約4日間稼働停止。第一レーダーのメインコンピュータのハードディスクがクラッシュしたが、予備機が準備しており復旧後すぐに切り替える。
- 7-8月のアンテナVSWR測定で第一レーダーの2本、第二レーダーの1本に不具合が判明。10/16-20に業者による修理点検の予定(レーダーも停止)。
- Syowa South / East, King Salmon radarについては、別途行松さんおよび長妻さんの講演にて。

SuperDARN北海道-陸別第一・第二HFレーダー (SuperDARN HOP radars)の現状について



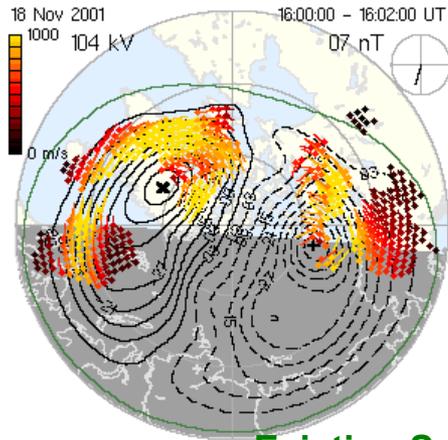
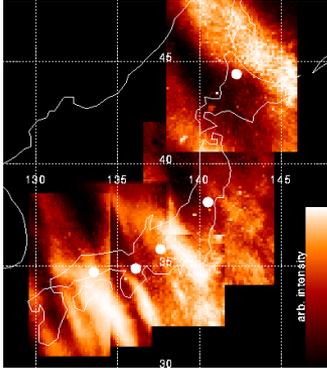
北海道-陸別第二レーダー装置(2014.10-)

西谷 望

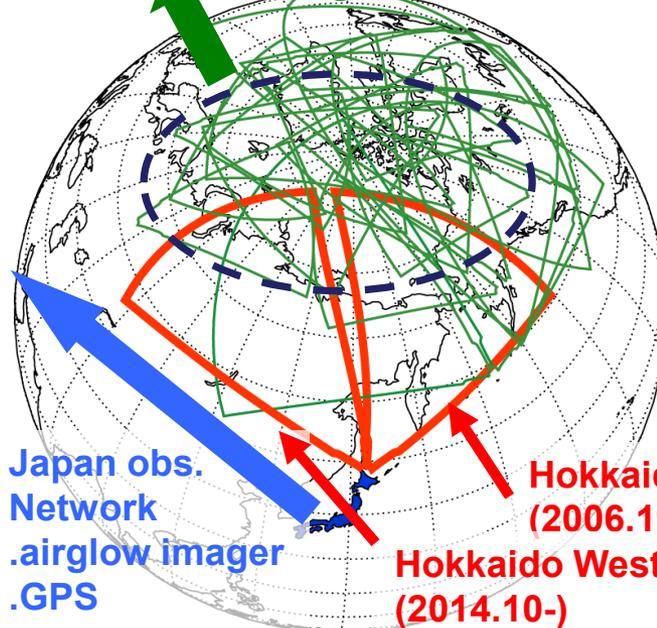
SuperDARN Hokkaido Pair of (HOP) radars (2006.11-)

Airglow imagers

OI 630-nm emission
22/05/1998 23:10 JST



Existing SuperDARN network



Japan obs.
Network
.airglow imager
.GPS

Hokkaido East radar
(2006.11-)

Hokkaido West radar
(2014.10-)

The Hokkaido radar covers **38-80 geomag. lat**, Corresponding to **L= 1.6 to 33**

Study of ionosphere, thermosphere and upper mesosphere



Unified understanding of the dynamics of the high- to mid-latitude upper atmosphere

HOP general status: operational

Recent topics of HOP West (hkw)

- During the site trip in Jul 2-4 it was found that one antenna (F4) had VSWR profile problem. It was first detected in 2015 but the problem seemed to disappear in 2017. It was also found that two antennas (F5 / R3) had minor problems in VSWR profile, but it was outside our operation frequency range. So this problem does not affect our observation. Repair is planned during Oct 16-20.

HOP general status: operational

Recent topics of HOP East (hok)

- During the site trip in Jul 2-4 it was found that two antennas (F5 / F11) had VSWR profile problem. The profile is very similar to the faulty balun cases (F3/F4) detected in 2016. Repair is planned for Oct 16-20.
- It was also found that on transmitter had vacuum relay problem but it was replaced with spare. All 16 transmitters are working properly and there are 1 spare in good shape.

HOP West (hkw) radar: unsolved issues

- Maximum range issue (we want to change from 70 to 110 but we do not know how to do it)
- Access limited during the winter time
- General issue: Still we have problems of slow remote WIFI line connection during winter time (possibly affected by snowfall and antennas / land covered with snow).

HOP East issue

- Both BASBOX's still having a problem in chA but we can use chB (HOP East is a mono radar) without a problem, so probably it is ok.

SuperDARN Hokkaido Radar
北海道陸別HFレーダー

ISEE Nagoya University
Japanese

Home Information DATA Photo Album Workshop Member Publication List Essay Link

News:

"Review of mid-latitude SuperDARN follow-up workshop" was held on Jan 9-12, 2018.

2nd ISEE/CICR International Workshop on "Review of the accomplishments of the mid-latitude SuperDARN network" was held. Domestic SuperDARN Workshop 2016 Website Open.

Web system updated.

The leaflet is available.

What's New:

- 2018/04/16 Link page updated.
- 2017/02/16 2nd ISEE/CICR International Workshop page is available.
- 2016/01/19 Domestic SuperDARN Workshop 2016 Website Open.
- 2015/10/26 The leaflet updated.
- 2015/6/09 Web system updated.
- 2015/05/26 The leaflet is available.
- 2014/11/27 Essay page is available.
- 2014/06/02 SuperDARN in virtual reality is available.
- 2014/03/12 The leaflet is available.
- 2014/01/14 Movie Gallery page is available.
- 2013/08/22 Summary plot for each beam is available now for browsing.
- 2013/04/22 Link page updated.
- 2012/09/06 STEL Newsletter articles about SuperDARN are available.
- 2011/08/02 This website was renewed.
- 2011/07/08 Publication list updated.
- 2011/05/19 Radar operation history added.
- 2009/04/16 Publication list updated.
- 2008/04/19 King Salmon radar information added.
- 2008/04/19 Publication list now accessible.

Summary Plot East
Summary Plot West
Hokkaido - King Salmon Joint Plot Movie
Information

Contact: Nozomu Nishitani
nishitani@isee.nagoya-u.ac.jp
TEL 052-747-6345
FAX 052-789-5891
Last Update: July 13, 2018

IUGONET
This data has been registered in IUGONET (Inter-university Upper atmosphere Global Observation Network) metadata database. The IUGONET metadata database will be of great help to researchers in efficiently finding and obtaining ground-based observation data spread over the institutes/universities. Click and visit to the IUGONET website.

UDAS
IUGONET also prepared the IUGONET Data Analysis Software (UDAS) for the upper atmospheric observation data. If you install the UDAS, you can easily access,

SuperDARN HOP (Hokkaido Pair of) radars web page

URL:

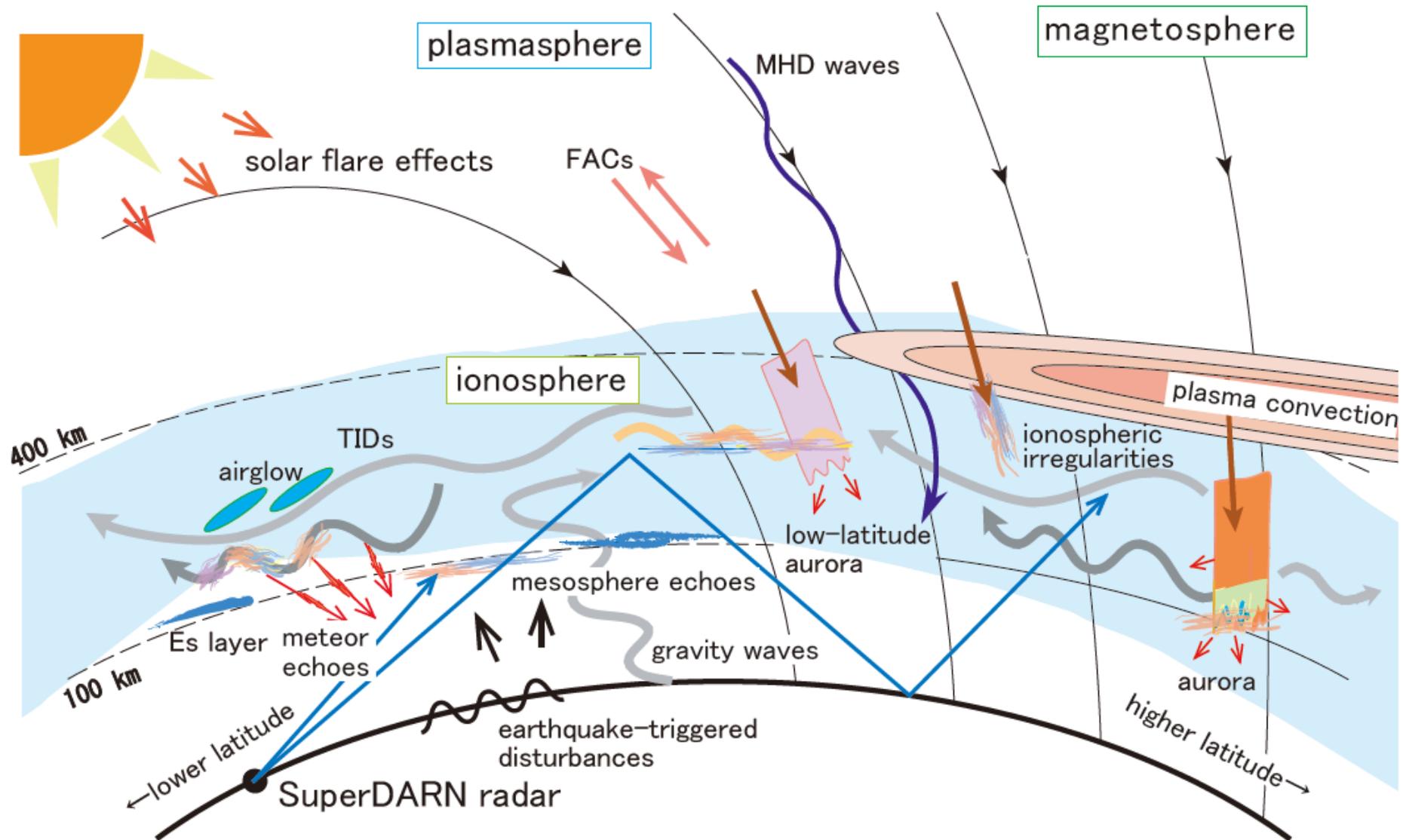
<http://cicr.isee.nagoya-u.ac.jp/hokkaido/>

Updates:

Links to old web page has been deleted.

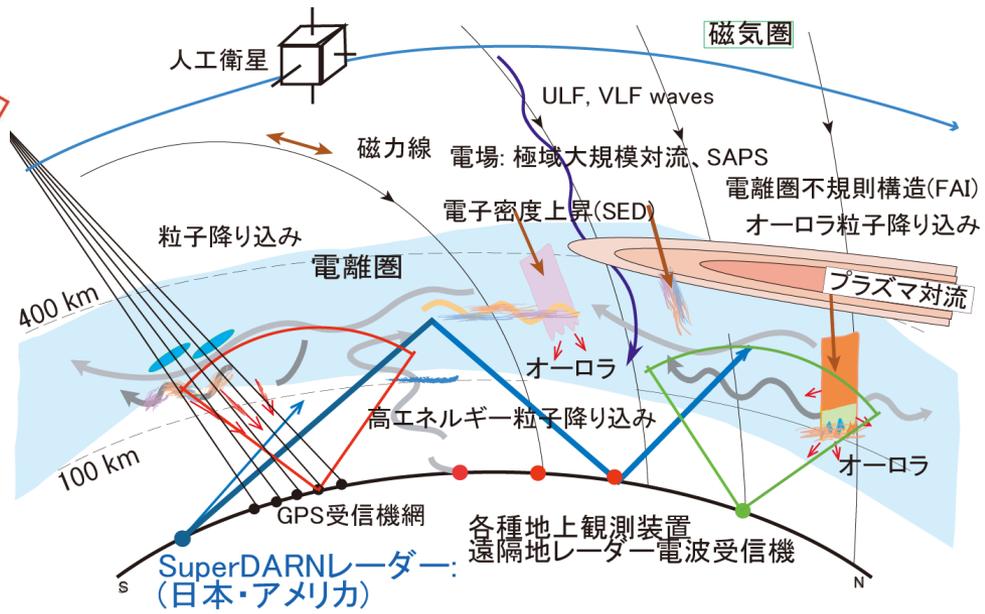
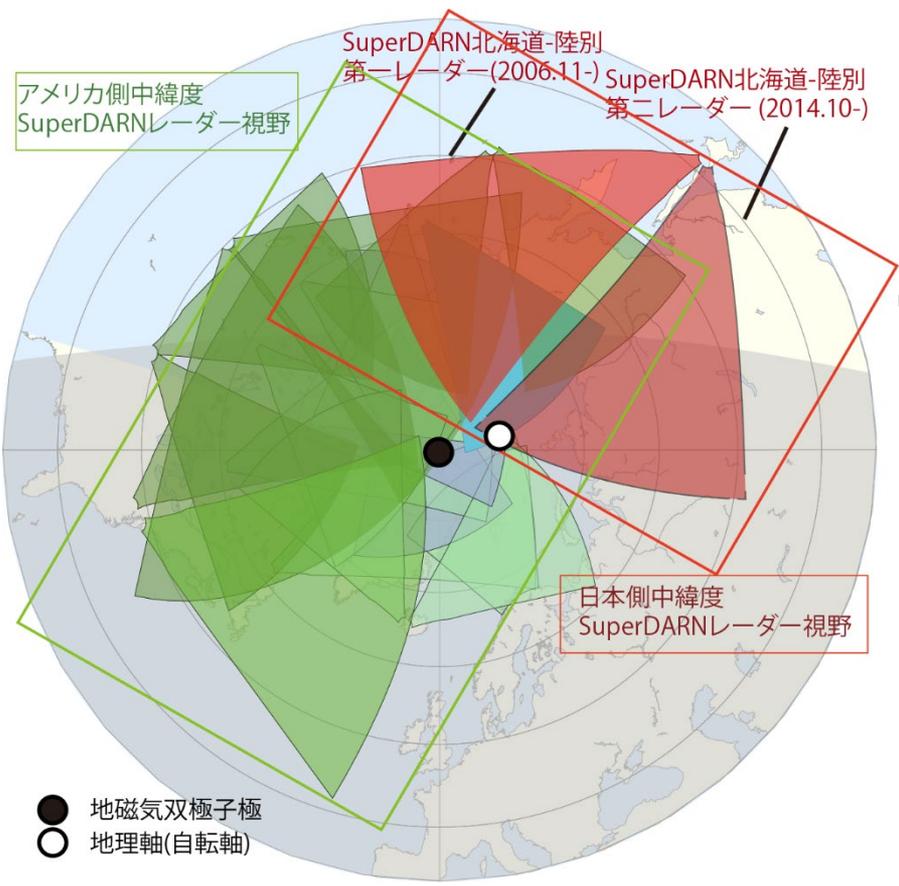
Nishitani's e-mail address has been updated.

"Last update: " date has been updated.



Schematic objectives of the SuperDARN radars
 Nishitani, Ruohoniemi, Lester et al., Mid-latitude SuperDARN review,
 submitted to PEPS (2018.8) after 2 international workshops (2017.1 and 2018.1)₁₃

日本-アメリカ間国際共同研究加速 基金(国際共同研究強化B)採択 (平成30-35年度)



まとめ

- SuperDARNレーダーネットワークは少しずつであるが確実に拡大している(計画は赤道域まで)。
 - 既存のレーダーも一部動作停止しているものがあるものの全体としては継続してデータを取得している。
 - SuperDARNコミュニティにおいて人工衛星(特にあらせ衛星)とのcollaborationがより重要視されつつある。
 - Mid-latitude SuperDARN review paperを現在PEPSに投稿中。
 - 日本-アメリカ間国際共同研究加速基金(国際共同研究強化B)採択
-
- 陸別の2基のレーダーも、いくつかのトラブルはあるものの基本的に継続して観測している。
 - 昭和第一・第二レーダー、King Salmonレーダーについては行松さん、長妻さんの講演にて。