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MAGDAS-I, -II and -9 Systems of SERC

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2. Three Types of MAGDAS

- **MAGDAS-I** (29 stations)

AMA, ANC, CEB, CGR, CKT, CMD, CST, DAV, DAW, DVS, EUS, FYM, GLY, HER, HLN, HOB, LAQ, LKW, MCQ, MGD, MLB, PTK, ROC, SMA, TGG, TIR, TWV, WAD, YAP

- **MAGDAS-II** (14 stations)

ASW, BCL, CDO, DES, DRB, EWA, KPG, KRT, LGZ, MND, MPT, NAB, OIS, PRP

- **MAGDAS-9** (10 stations)

AAB, ABJ, ABU, ASB, ILR, KUJ, LAG, LSK, MUT, ONW

3. Definition of MAGDAS-I, -II and -9

- **MAGDAS-I** (29 stations)

Magnetometer that was manufactured by **Meisei Electric, Ltd.**, Japan. It has real time data transmission capability.

- **MAGDAS-II** (14 stations)

Magnetometer: YU-8T, FRG601, GMB-799
Data transfer: **Armadillo**

- **MAGDAS-9** (10 stations)

FRG-604RB or **FRG-604RC** magnetometer, manufactured by Tierra Tecnica Ltd.. It has real time data transmission capability.

4. MAGDAS-I

● MAGDAS-I

Magnetometer that was manufactured by **Meisei Electric, Ltd.**, Japan. It has real time data transmission capability.

- Highest Data Resolution: 1Hz
- Data Volume: \sim 3Mb/day
- IP Address: A fixed IP address is needed
- Time Correction: GPS

4. MAGDAS-I

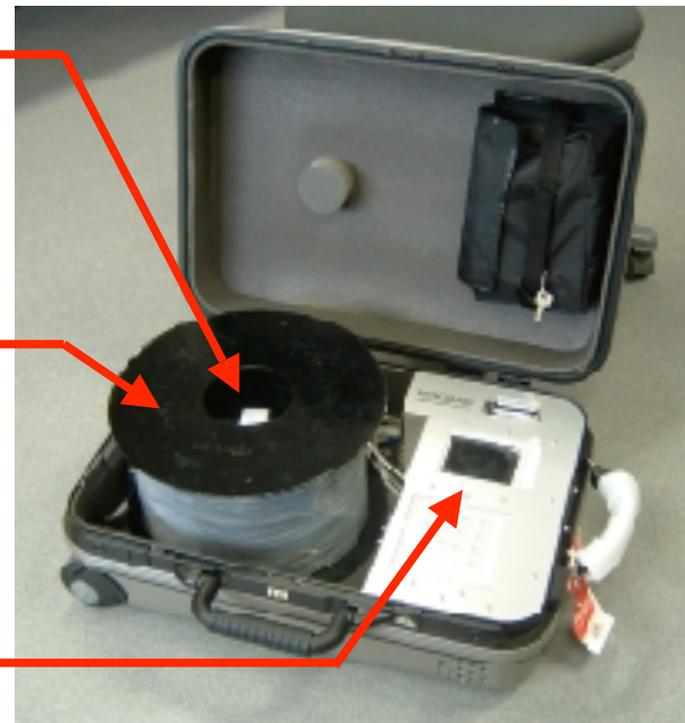
● MAGDAS-I

Magnetometer that was manufactured by **Meisei Electric, Ltd.**, Japan. It has real time data transmission capability.

Fluxgate sensor

Cable between sensor and main unit (70m in length)

Main unit (Data logger and Data transfer)

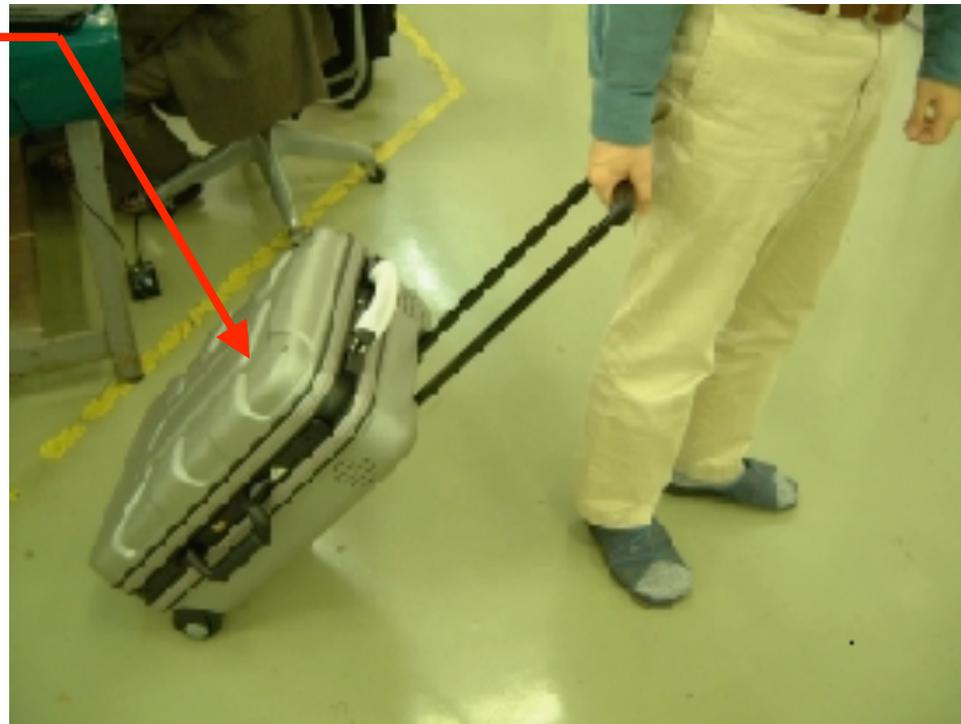


4. MAGDAS-I

- MAGDAS-I

Magnetometer that was manufactured by **Meisei Electric, Ltd.**, Japan. It has real time data transmission capability.

Only 15 kg in weight

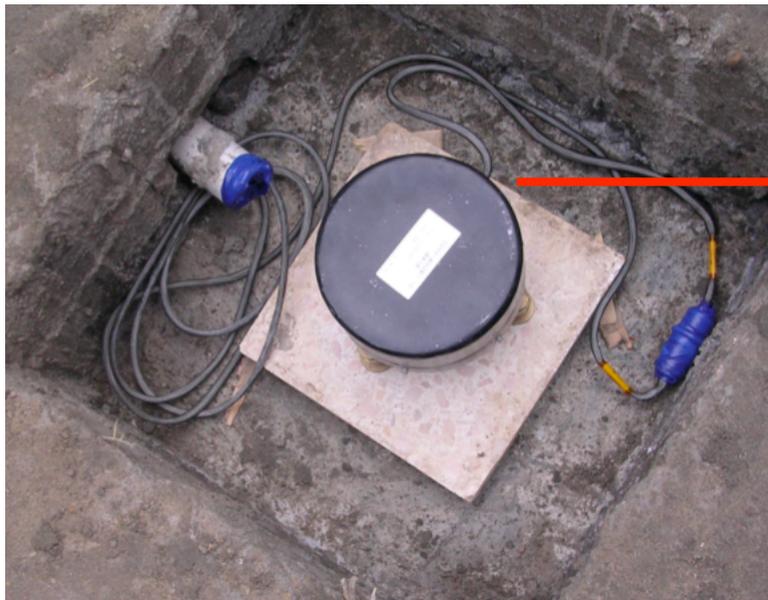


4. MAGDAS-I

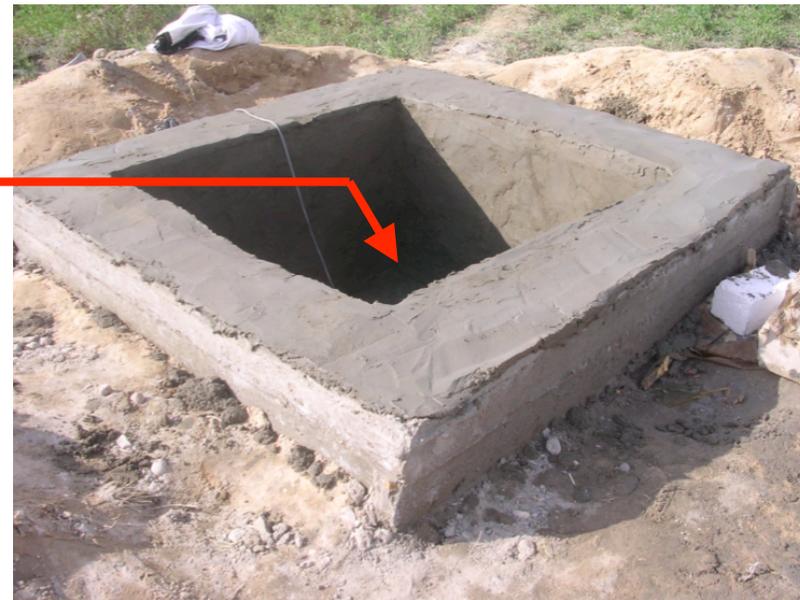
● MAGDAS-I

Magnetometer that was manufactured by **Meisei Electric, Ltd.**, Japan. It has real time data transmission capability.

Installation Example: Fayum, Egypt (Jan. 2008-)



Fluxgate sensor



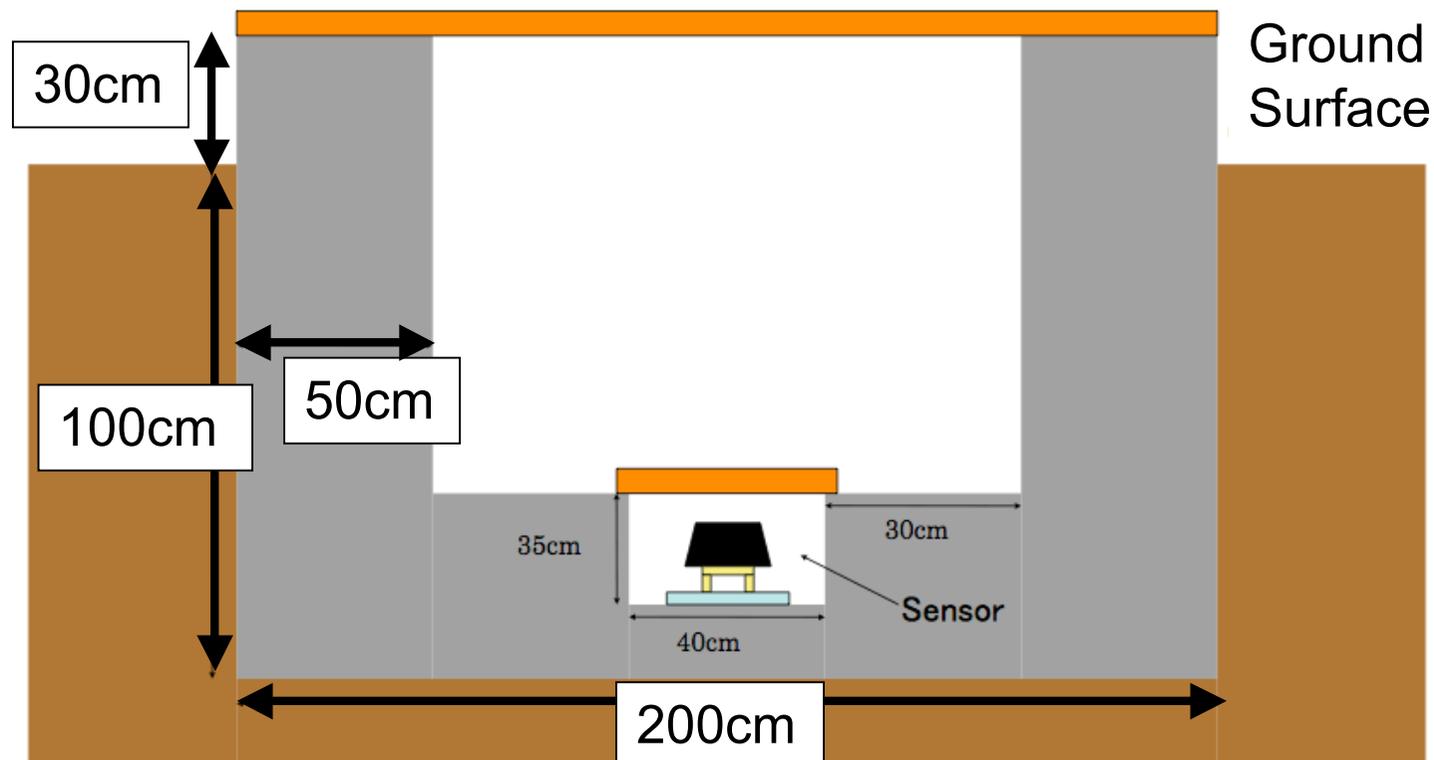
Semi-basement Sensor Hut

4. MAGDAS-I

● MAGDAS-I

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Installation Example: Fayum, Egypt (Jan. 2008-)



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Installation Example: Fayum, Egypt (Jan. 2008-)



11 L water container

4. MAGDAS-I

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First MAGDAS installation at Fayum in Egypt

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Mahrous et al. (2010): First MAGDAS installation at Fayum in Egypt, *Advances in Space Research*, vol. 46

5. MAGDAS-II

● MAGDAS-II

Magnetometer: YU-8T, FRG601, GMB-799

Data transfer: **Armadillo**

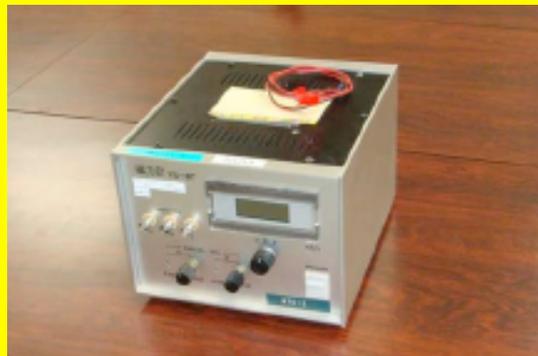
- Highest Data Resolution: 1Hz
- Data Volume: Depends on the magnetometer
- IP Address: A fixed IP address or DHCP address
- Time Correction: GPS

5. MAGDAS-II

● MAGDAS-II

Magnetometer: YU-8T, FRG601, GMB-799

Data transfer: **Armadillo**



YU-8T



FRG601



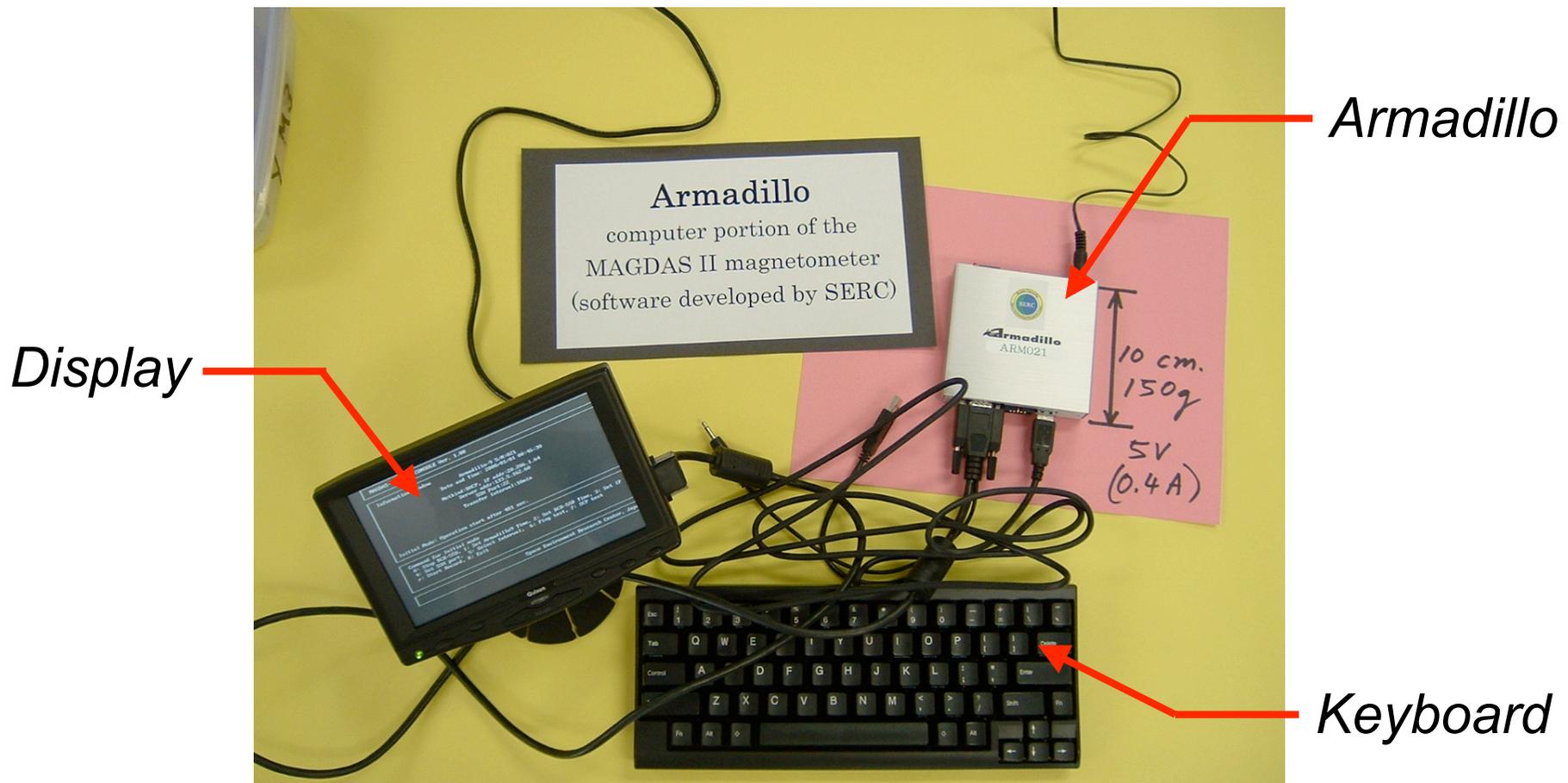
GMB-799

5. MAGDAS-II

- MAGDAS-II

Magnetometer: YU-8T, FRG601, GMB-799

Data transfer: **Armadillo**



5. MAGDAS-II

● MAGDAS-II

Magnetometer: YU-8T, FRG601, GMB-799

Data transfer: **Armadillo**

Installation Example: Legazpi, Philippines (Jul. 2009-)



FRG601



Armadillo



120cm

6. MAGDAS-9

● MAGDAS-9

FRG-604RB or **FRG-604RC** magnetometer manufactured by Tierra Tecnica Ltd.. It has real time data transmission capability.

- Highest Data Resolution: 10Hz
- Data Volume: ~ 11 Mb/day
- IP Address: A fixed IP address or DHCP address
- Time Correction: GPS

6. MAGDAS-9

- **MAGDAS-9**

FRG-604RB or **FRG-604RC** magnetometer manufactured by Tierra Tecnica Ltd.. It has real time data transmission capability.



Fluxgate sensor

Amplifier

*Main unit (Data logger
and Data transfer)*

6. MAGDAS-9

- **MAGDAS-9**

FRG-604RB or **FRG-604RC** magnetometer manufactured by Tierra Tecnica Ltd.. It has real time data transmission capability.



6. MAGDAS-9

- **MAGDAS-9**

FRG-604RB or **FRG-604RC** magnetometer manufactured by Tierra Tecnica Ltd.. It has real time data transmission capability.

Installation Example: Ilorin, Nigeria (Mar. 2006-)



Solar Cell

6. MAGDAS-9

- **MAGDAS-9**

FRG-604RB or **FRG-604RC** magnetometer manufactured by Tierra Tecnica Ltd.. It has real time data transmission capability.

Installation Example: Ilorin, Nigeria (Mar. 2006-)



*12 V Car Battery
(260 amp hr)*

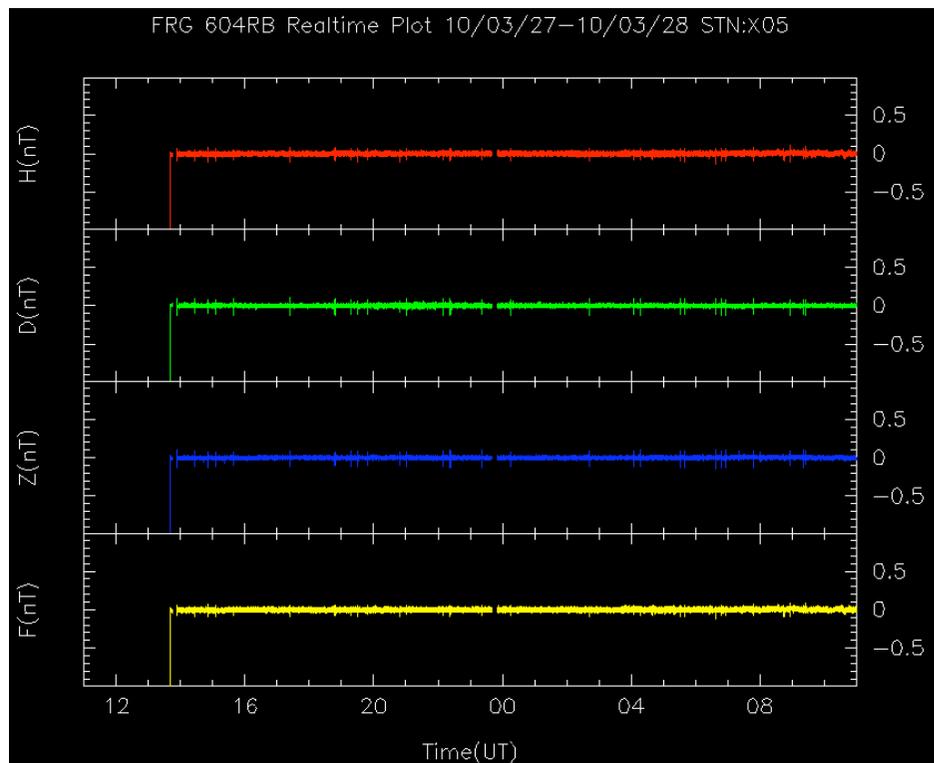
*Main Unit
(FRG-604RB)*

6. MAGDAS-9

● MAGDAS-9

FRG-604RB or **FRG-604RC** magnetometer manufactured by Tierra Tecnica Ltd.. It has real time data transmission capability.

Installation Example: Ilorin, Nigeria (Mar. 2006-)



Noise level < 0.1 nT

Thank you for your attention!



[http://www.serc.kyushu-u.ac.jp/index_e.html]



7. Summary

We have explained what is MAGDAS-I, what is MAGDAS-II and what is MAGDAS-9.

MAGDAS-I is the magnetometer that manufactured by Meisei Electric Ltd.. Total weight is only 15kg.

MAGDAS-II is the

- **MAGDAS-9**

- Data Volume: $\sim 11\text{Mb/day}$

- IP Address: A fixed IP address or DHCP address