Course Information

2018

Improvement of Meteorological Satellite Data Analysis and Application Capacity

October 21 – November 17, 2018

Seongnam&Seoul, Republic of Korea

KOICA CIAT

Korea International Cooperation Agency

Korea Meteorological Administration

Korea Meteorological Administration

CONTENTS

PART I COURSE OVERVIEW

1. **TITLE: Improvement of Meteorological Satellite Data Analysis and Application Capacity**

2. **PERIOD: October 21 (Sunday) ~ November 17 (Saturday), 2018**

3. **GOAL:** To strengthen capacity for timely response to high impact weather

4. **OBJECTIVES**

   a) To introduce Communication, Ocean and Meteorological Satellite (COMS) & GEO-KOMPSAT-2A program, observation schedule and data distribution policy

   b)To enhance capabilities to utilize the meteorological satellite data and derived products for monitoring and nowcasting of the high impact weather

   c)To increase the abilities to analyze the location, intensity and size of tropical cyclones and to track convective clouds using GEO satellites data.

   d)To strengthen future cooperation in the meteorological satellite areas among the participating countries

5. **NUMBER OF PARTICIPANTS:** 18 participants (from 12 countries)

Timor-Leste (2), Mongolia(2), Bangladesh(2), Solomon Island(2), Ukraine(1), Peru(2), Cambodia(1), The Philippines(1), Sri Lanka(1), Myanmar(2), Vietnam(1), Laos(1),

6. **LANGUAGE OF INSTRUCTION:** English

7. **VENUE:** Seongnam & Seoul, Republic of Korea

8 **TRAINING INSTITUTE:** Korea Meteorological Administration (KMA)

9. **ACCOMMODATIONS:**

   1) KOICA International Cooperation Center (ICC) (https://training.koica.go.kr)

   2) Hotel in Seoul (to be announced)

10. QUALIFICATIONS OF APPLICANTS:

- This training is a third-year course designed to support the capacity building of Meteorological Satellite Data Analysis and Application. It targets Minimum level of experience: scientists or staff in charge of satellite meteorology or weather forecast for their NMSs with at least 3 years of experience.

Mandatory	a) Be nominated by his/her government; b) Be in good health both physically and mentally, to undergo the course; c) Has not participated in the same or similar KOICA fellowship program for the past 3 years - unless otherwise specified; d) Show a high level of participation and commitment throughout the course and promote capacity building in his/her organization after the completion of the program;
Preferable	a) Be a government employee at a working level b) Sufficient Proficiency in written and spoken English c) Working knowledge of computers and PowerPoint software d) Be expected to work in the related fields for more than a year after training course

11. CLOSING DATE FOR APPLICATION: **September 26, 2018**

12. 3-YEAR PROGRAM OVERVIEW (TENTATIVE)

	1st year	2nd year	3rd year	To-be Planned
Goal	**To strengthen capacity for timely response to high impact weather**			
Objective	- To introduce Communication, Ocean and Meteorological Satellite (COMS) & GEO-KOMPSAT-2A program, observation schedule and data distribution policy - To enhance understanding on the meteorological satellite products for better meteorological analysis and forecasting	- To improve analysis and application competence in the various fields such as marine, climate, environment, hydrology etc. using GEO satellites data. - To strengthen future cooperation in the meteorological satellite areas among the participating countries	- To enhance capabilities to utilize the meteorological satellite data and derived products for monitoring and nowcasting of the high impact weather - To increase the abilities to analyze the location, intensity and size of tropical cyclones and to track convective clouds using GEO satellites data.	
Target Group & Beneficiary	- Minimum level of experience: scientists or staff in charge of satellite meteorology or weather forecast for their NMSs with at least 3 years of experience.	- Minimum level of experience: scientists or staff in charge of satellite meteorology or weather forecast for their NMSs with at least 3 years of experience	- Minimum level of experience: scientists or staff in charge of satellite meteorology or weather forecast for their NMSs with at least 3 years of experience	
Main Activities	Training in Korea (4 weeks)	Training in Korea (4 weeks)	Training in Korea (4 weeks)	
Output	Action plan	Action plan	Action plan	

PART II COURSE MODULE

MODULE	MAIN LECTURES & DISCUSSIONS	STUDY VISIT
Module 1 Understanding of Korea & KMA	- Introduction of Korea Meteorological Administration(KMA) - Recent Developments and Future Plans of KMA - Korea's Culture, Society and Language	- National weather center - National earthquake center - Information and communication center
Module 2 Korean meteorological satellite program	- Introduction of National Meteorological Satellite Center(NMSC) - Vision and mission of NMSC - Master plans for national space development program	- National meteorological satellite center (NMSC)
Module 3 COMS data processing and products	- Basic principle of radiation - Basic operation, receiving, processing and service of COMS - Interpretation of 16 baseline products of COMS and their application	
Module 4 Satellite imagery interpretation	- Interpretation of single channels imagery - Identify surface feature, cloud types and theirs characteristics - Understanding cyclogenesis in the satellite imagery - Interpret broadscale, synoptic and mesoscale phenomena - Utilization of microwave images and products such as precipitation, sea surface wind, temperature and humidity profile from GPM, Metop, DMSP etc. - Practice with case studies	

Module 5 Applications of GEO and LEO satellite data	- Theory of tropical cyclone analysis (Advanced Dvorak Technique and Subjective Dvorak Technique, various marine information from satellite) - Practice to produce tropical cyclone information such as center position, intensity, maximum wind speed, strong wind area etc. using Web-based Typhoon Analysis System - Tracking of convective clouds from its initiation to decay using next generation satellite - Environment monitoring such as fog, dust, ash using satellite data Application of GEO and LEO satellite into climate, drought, agriculture, wild fire etc.	
Module 6 GEO-KOMPSAT-2A satellite	- Current status of KMA's next geostationary satellite(GEO-KOMPSAT-2A) development - Understanding differences between legacy COMS and GEO-KOMPSAT-2A - Ground system development of GEO-KOMPSAT-2A - Data service and dissemination policy of GEO-KOMPSAT-2A - Weather monitoring and usage of rapid-scan data using Himawari-8 data - Properties of 16channels of GK-2A - Baseline products for clouds and precipitation parts - Baseline products for radiation and aerosol parts - Baseline products for Atmosphere and aviation parts - Baseline products for scene analysis and surface information parts - Understand fundamental RGB techniques and their applications	
Module 7 GEO-KOMPSAT-2A satellite data processing tools	- Install and usage of user customized GK-2A data analysis software - Data processing exercise of Level 1 data and various function for cloud analysis - Practice to generate RGB composites using Himawari-8 data - Practice to produce weather analysis information reports	
Module 8 Action Building	- Country Report Presentation - Action Learning - Action Plan Presentation	
Module 9 Cultural Experience	- Seoul City Tour - Field Trip	- National meteorological supercomputer center

PART III PREPARATION FOR COUNTRY REPORT

1. GUIDELINES FOR PREPARATION OF THE COUNTRY REPORT

Program participants are requested to prepare and submit their country report as a group to Ms. Nayoung Yim, Program Manager at the KMA via e-mail to **nyyim@korea.kr** no later than **October 5, 2018.**

Note. The KOICA's Fellowship Program includes a 'Country Report' session where participants have an opportunity to analyze each country's current status and circumstances in the program subject and share it with other participants and Korean experts. It aims to provide appropriate solutions and insights to the identified problems and issues of their countries.

The Country Report should be in MS PowerPoint or Word format. The length of the report should not exceed twenty A4-sized pages. The report should be written in English and double-spaced.

All participants are required to give a 10-minute presentation on their country report individually or as a group. For more effective presentations, a projector, slide projector, overhead projector, and multimedia TV will be available (PowerPoint presentations are preferred).

2. TOPICS TO BE COVERED IN THE COUNTRY REPORT

- In the beginning of the training course, all participants will make a group presentation titled "Country Report" following the given guidelines.
- Based on what you have presented and discussed throughout the course, you are requested to present an Action Plan on the last day of the workshop.

A. Subject

- Analysis of Strength and Weakness in Meteorological Satellite data service

B. Details of Country Report Preparation

- **National Satellite Policies**
  - Explain Satellite policies for national meteorological services (Short-term or long-term plan: goals, priorities, strategies, etc.)
  - Explain main function and task of Satellite part in the organization
- **It is suggested to report as bellows:**
  - What's the major weather phenomena causing hazard?
  - How do you observe and forecast those issues?
  - What kind of data do you use including satellite data?
  - How competent are your staff members for satellite data acquisition and analysis?
  - What's your plan for new satellite data acquisition and analysis?
  - What do you expect through this training course?
- **Future direction and cooperation**
  - Describe satellite needs based on the problem
  - Describe participant's expectation from the training course
- **Country Report should also include the topic you would like to discuss during the workshop.**

PART IV ACTION PLAN BUILDING

1. GUIDELINES FOR PREPARATION OF THE ACTION PLAN

All participants are requested to prepare a presentation on their action plan individually or as a group at the end of the course. The action plan is to identify each country's current problems and propose appropriate solutions in order to solve these problems.

The participants are encouraged to make the most of their weekends and leisure time to further their knowledge acquired from the program and better prepare their presentation for the action plan.

2. TOPICS TO BE COVERED IN THE ACTION PLAN

a) Bring up various problems related to each country's current situation of Meteorological Satellite data service.
b) Find out the best way of solving problems using the information and knowledge achieved through the course
c) Make practical and specific proposals and specify the implementation plan.
d) Think about how it will affect the current problems and what advantages it will bring in the future.

3. STEPS FOR THE ACTION PLAN

- **[Step 1] Present a Country Report**
  - On the 1st day of the course, participants are to share their current situation and issues of their interests through Country Report presentation
  - KDIS will provide an orientation for an Action Plan

- **[Step 2] Lecture on Action Plan and Team-building**
  - Lecture on Action Plan building process
  - Team-building according to the selection of Action Plan topic
- **[Step 3] Group Discussions/ workshops**
  - Brainstorming and group discussions for developing an Action Plan
  - Consult with experts and receive feedbacks
- **[Step 4] Complete the Action Plan**
  - Finalize an Action Plan for the development of new policies/programs or upgrade their existing policies, systems and practices
  - Presentation on the final Action Plan and getting feedback

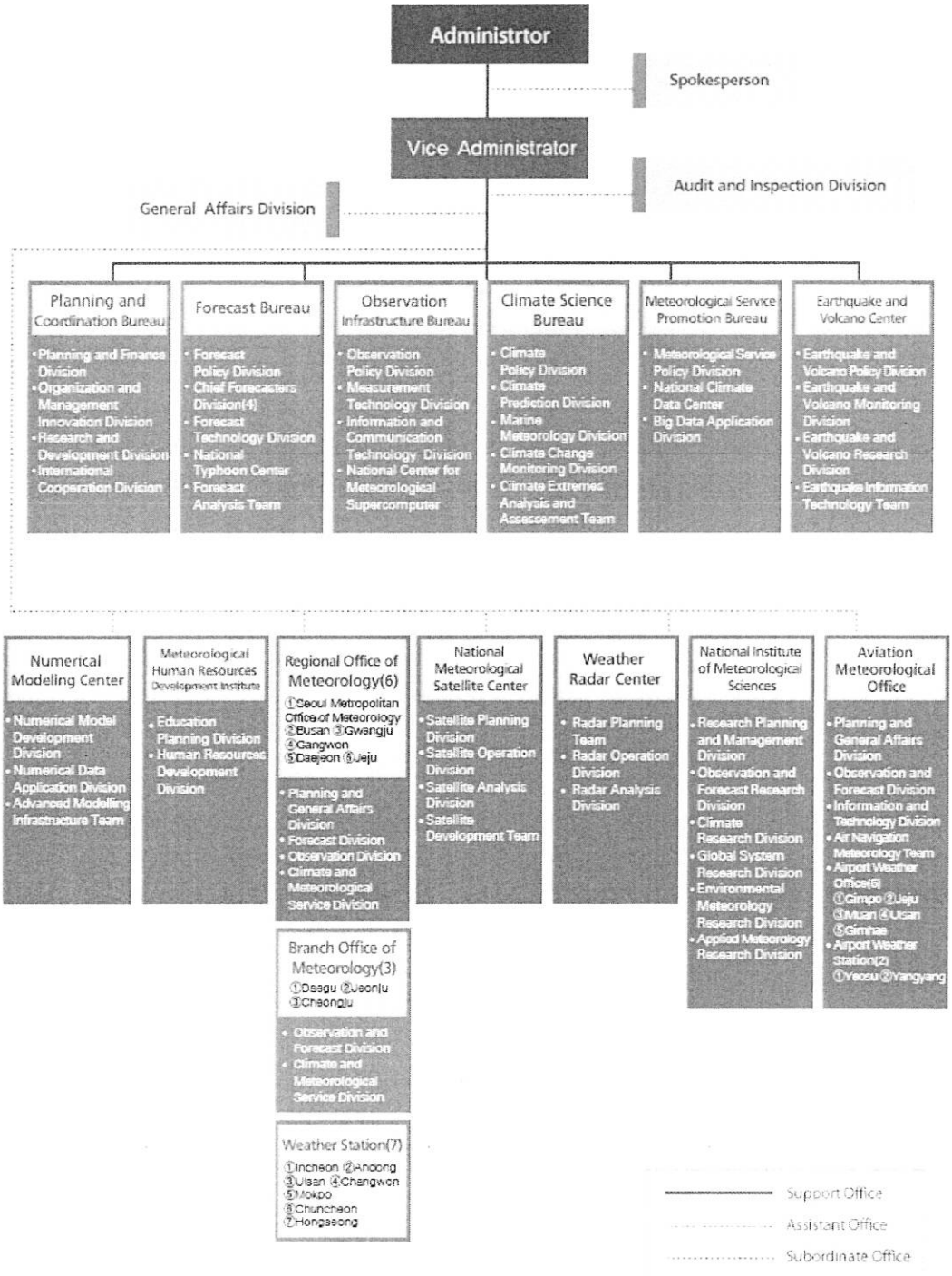
PART V USEFUL INFORMATION

1. TRAINING INSTITUTE

A. The Korea Meteorological Administration (http://www.kma.go.kr)

The KMA is a governmental organization of the Republic of Korea under the Ministry of Environment (MOE). Its mission is defined to protect citizens' lives and properties from natural disasters and improve the commonwealth of the public in ways such as providing support for economic activities. In this regard, KMA undertakes the observation and analysis of meteorological phenomena on the ground, in the ocean, and in the atmosphere, while providing weather forecasts and warnings, and presents climate statistics and industrial-meteorological data. Furthermore, KMA exchanges meteorological data and information with domestic and foreign organizations, conducts research and technology development activities, and prompts international cooperation.

KMA's head administration consists of 1 administrator, 1 vice administrator, 5 director generals, 30 divisions, and 3 centers. Its subsidiaries include the National Institute of Meteorological Research (NIMR), 5 regional administrations, the National Meteorological Satellite Center, the Weather Radar Center, and the Korea Aviation Meteorological Agency. The total number of KMA staff is approximately 1,300.


Administrtor
Spokesperson
Vice Administrator
Audit and Inspection Division
General Affairs Division
Planning and Coordination Bureau
• Planning and Finance Division
• Organization and Management Innovation Division
• Research and Development Division
• International Cooperation Division
Forecast Bureau
• Forecast Policy Division
• Chief Forecasters Division(4)
• Forecast Technology Division
• National Typhoon Center
• Forecast Analysis Team
Observation Infrastructure Bureau
• Observation Policy Division
• Measurement Technology Division
• Information and Communication Technology Division
• National Center for Meteorological Supercomputer
Climate Science Bureau
• Climate Policy Division
• Climate Prediction Division
• Marine Meteorology Division
• Climate Change Monitoring Division
• Climate Extremes Analysis and Assessment Team
Meteorological Service Promotion Bureau
• Meteorological Service Policy Division
• National Climate Data Center
• Big Data Application Division
Earthquake and Volcano Center
• Earthquake and Volcano Policy Division
• Earthquake and Volcano Monitoring Division
• Earthquake and Volcano Research Division
• Earthquake Information Technology Team
Numerical Modeling Center
• Numerical Model Development Division
• Numerical Data Application Division
• Advanced Modelling Infrastructure Team
Meteorological Human Resources Development Institute
• Education Planning Division
• Human Resources Development Division
Regional Office of Meteorology(6)
①Seoul Metropolitan Office of Meteorology ②Busan ③Gwangju ④Gangwon ⑤Daejeon ⑥Jeju
• Planning and General Affairs Division
• Forecast Division
• Observation Division
• Climate and Meteorological Service Division
Branch Office of Meteorology(3)
①Daegu ②Jeonju ③Cheongju
• Observation and Forecast Division
• Climate and Meteorological Service Division
Weather Station(7)
①Incheon ②Andong ③Ulsan ④Changwon ⑤Mokpo ⑥Chuncheon ⑦Hongseong
National Meteorological Satellite Center
• Satellite Planning Division
• Satellite Operation Division
• Satellite Analysis Division
• Satellite Development Team
Weather Radar Center
• Radar Planning Team
• Radar Operation Division
• Radar Analysis Division
National Institute of Meteorological Sciences
• Research Planning and Management Division
• Observation and Forecast Research Division
• Climate Research Division
• Global System Research Division
• Environmental Meteorology Research Division
• Applied Meteorology Research Division
Aviation Meteorological Office
• Planning and General Affairs Division
• Observation and Forecast Division
• Information and Technology Division
• Air Navigation Meteorology Team
• Airport Weather Office(6) ①Gimpo ②Jeju ③Busan ④Ulsan ⑤Gimhae
• Airport Weather Station(2) ①Yeosu ②Yangyang
Support Office
Assistant Office
Subordinate Office

B. National Meteorological Satellite Center (http://www.nmsc.kma.go.kr)

National Meteorological Satellite Center (NMSC), which belongs to the Korea Meteorological Administration (KMA), is located in Jincheon-Gun about 70km southeast from Seoul. It carries out comprehensive operation of the ground system of COMS(Communication, Ocean and Meteorological Satellite) that is the first geostationary meteorological satellite of Korea launched in 2010. NMSC started service of COMS Images from April 2011 together with various COMS products. NMSC is also responsible for research on meteorological satellite data as well as receiving and processing of foreign satellites products.

The NMSC has a plan to launch next geostationary satellites. One (Geo-KOMSAT-2A) is for weather and space weather observation and the other (Geo-KOMSAT-2B) is for ocean and environment observation. Geo-KOMSAT-2A is scheduled to be launched in 2018, while Geo-KOMSAT-2B in 2019.

2. CONTACT INFORMATION

- **Korea International Cooperation Agency (KOICA)**
  - CIAT Program HOT Line : +82-1899-4519
  - Websites: http://www.koica.go.kr
    http://training.koica.go.kr
    http://www.facebook.com/koica.icc
  - Program Manager: Mr. Yong-Hwa SHIN
  - Phone: +82-31-740-0531
  - Fax: +82-31-740-0595
  - E-mail: yhs@koica.go.kr
  - Program Coordinator: Ms. Geunyoung KIM
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- **The Korea Meteorological Administration**
  - **Program Manager: Ms. Nayoung YIM**
  - Phone: +82-2-2181-0035
  - Fax: +82-2-2181-0569
  - E-mail: nyyim@korea.kr

Appendix 1.

INTRODUCTION to KOICA

KOICA
Korea International Cooperation Agency

established in 1991. KOICA's mission is to reduce poverty, promote living standards and help realize sustainable, equitable and inclusive development in developing countries. To accomplish its mission, KOICA has been actively involved in enhancing developing countries' socio-economic infrastructure and institutions, providing people in the developing world with opportunities for better lives and improving their well-being.

KOICA Fellowship Program

Human Resource Development (HRD) has been one of the most important factors in Korea's escape from the vicious cycle of poverty and underdevelopment which had lasted for many decades. With scarce natural resources, HRD has played a vital role in the process of the economic development of Korea, enabling the nation to emerge as an exemplary case of rapid economic growth powered by HRD. From its own experience, Korea fully recognizes the significance of HRD. With its extensive experience and know-how in HRD, Korea has greatly contributed to the international community by sharing its unique development experience with many other countries around the world.

The KOICA Fellowship Program is one of KOICA's main projects to help partner countries secure human resources for their development. Its primary objective is to share important technical skills and knowledge with partner countries as well as to help them build capacity for sustainable socio-economic development. The program deals with a wide range of topics, from public administration, economic development and science and technology to agriculture, health, and more. In order to meet the changing needs of partner countries, KOICA always strives to renovate and improve its Fellowship Programs

Appendix 2.

KOICA FELLOWSHIP PROGRAM (CIAT)

KOICA has launched a brand-new name for the KOICA Fellowship Program in order to more effectively raise awareness about the program among the public and its partner countries.

In English, CIAT stands for Capacity Improvement and Advancement for Tomorrow and in Korean it means "seed (씨앗)" with hopes to contributing in the capacity development of individual fellows as well as the organizations and countries to which they belong.

The CIAT Program provides participants with opportunities to gain first-hand knowledge of Korea's development experience. The programs are designed to enable participants to apply what they have learned for the development of their home countries. Since 1991, KOICA has offered about 4,512 courses to more than 74,792 participants from 172 countries.

Appendix 3.

KOICA FELLOWSHIP COMMUNITY

The Fellows' Facebook is a place for fellows to ask questions and write comments on KOICA fellowship programs. So, if you have questions regarding our program, please feel free to join our Facebook community.

facebook.com/koica.icc

Appendix 4.

MAP AND VENUE INFORMATION

Appendix 5.

INFORMATION ON DIRECTION TO KOICA ICC

- **Route: Incheon International Airport Terminal → Korea City Airport, Logis & Terminal (CALT) → KOICA International Cooperation Center (ICC)**
- **Arrival at Incheon International Airport (http://new.airport.kr)**

Flow

- ▶ Fill out Arrival Card (or Immigration Card), Customs Declaration Form, Quarantine Questionnaire (on board)
- ▶ Present the Quarantine Questionnaire to the quarantine counter (on the second floor)
- ▶ Present your Arrival Card, Passport and other necessary documents to an officer at the immigration desk
- ▶ Claim your baggage on the first floor
- ▶ Hand in Customs Declaration Form at Customs
- ▶ Pass through the Arrival Gate
- ▶ Go to the KOICA Counter

Incheon International Airport opens *Second Passenger Terminal 2 (T2)*

on January 18, 2018

The new terminal is serviced by Korean Air (KOREAN AIR), KLM Royal Dutch Airlines (KLM), Air France (AIRFRANCE) and Delta Airlines (DELTA).

Accordingly, KOICA sets up an additional KOICA Counter in Terminal 2 as well. Please check its location in advance by referring to the followings information.

KOICA Counter at Incheon International Airport Terminal 1 (IIAT1)		
IIAT (T1)		**Location : Next to Gate 1 on the 1st floor (No.9-10)** **Contact Information** Tel. : 82-32-743-5904 Contact : Ms. Jin-Young YOON
KOICA Counter at Incheon International Airport Terminal 2 (IIAT2)		
IIAT (T2)		**Location : Tourist Information Center (Close to Arrival Gate B)** **Contact Information** Tel. : 82-32-743-5904 Contact : Ms. Jin-Young YOON *Contact information at T2 is subject to change

- After passing through Customs, please go to the KOICA Counter. At the KOICA Counter, you can get detailed information about how to get to the KOICA International Cooperation Center (ICC) and purchase a limousine bus ticket for City Airport, Logis & Travel (CALT).

- All the KOICA staff at the Incheon Airport wear a name tag or has a sign for indication.

- Even though you cannot find any KOICA staff at the counter, you can purchase a limousine bus ticket at the bus ticket counter, and then go to the CALT Bus Stop (refer to the following information). And get on the bus #6103 and present your ticket to the bus driver. It will take about 70 to 90 minutes from IIAT 1 and about 90 to 110 minutes from IIAT 2 to CALT.

Incheon International Airport Terminal 1 (IIAT1)		Limousine Bus # 6103
IIAT 1	Bus ticket counter : 1st floor / Bus Stop 7A	
Incheon International Airport Terminal 2 (IIAT2)		
IIAT 2	Bus ticket counter : Basement 1 / Bus Stop 22	

- **CALT (City Airport, Logis & Terminal)**

  - When you arrive at CALT, you can meet another KOICA staff who will help you reach the KOICA ICC.

  - If you paid for a limousine bus ticket out of your own pocket, KOICA will reimburse the bus fare when you arrive at the KOICA ICC. Also, please note that there can be illegal taxis at the airport. Even if they approach you to offer rides, do not take the illegal taxis and check to see if they are KOICA staff.

"Please remember to read the Fellows' Guidebook. It is available from the Korean Embassy or KOICA Overseas Office in your country and provides valuable information regarding KOICA programs, allowances, expenses, regulations, preparations for departure and etc."