

## **Job opening for Research Professionals [ Senior Research Scientist ] Data Assimilation**

The Korea Institute of Atmospheric Prediction Systems (KIAPS) is a research institution based in Seoul, established in 2011 to lead development of the core operational NWP systems for the Korea Meteorological Administration (KMA). The first KIAPS global NWP system was made operational at KMA in April 2020, and is now providing forecast skill that is comfortably within the range of the world's leading NWP centers.

In collaboration with developers at KMA, approximately 80 scientific and technical staff at KIAPS are now developing a full Earth system NWP capability aiming at the extended medium range, and also a high-resolution NWP capability for short-range forecasting over East Asia.

We are seeking data assimilation (DA) experts to lead scientific and technical development in one of the following two areas:

1. Development of our coupled atmosphere-ocean DA system.
2. Development of high-resolution LETKF-based ensemble DA systems, with a particular emphasis on assimilation of radar reflectivity observations.

For coupled atmosphere-ocean DA, we recently developed an ocean-only DA system based on NEMO and NEMOVAR, with surface forcing from the KIAPS atmosphere model, and 6-hour DA windows to match the atmospheric DA windows. The next step is to weakly couple this ocean DA system with the atmospheric DA system, and gradually try to improve performance. Thereafter, we will explore ways to strengthen the coupling between the systems by, for example, making use of cross-domain background error covariances.

For high-resolution DA, we have developed an initial WRF-based LETKF which can assimilate reflectivity observations from Korean dual-polar radars. We will continue using this system as test bed for developing high-resolution ensemble-based DA methods, and eventually use it as a reference

for our target DA system, which will be based on a high-resolution version of the KIAPS model now under development.

You would be expected to take a major role in guiding the work of existing staff involved in your project, but general staff management issues will be the responsibility of your team leader. You would help to develop the strategic path for your area, and otherwise focus on system development and analysis. Thus, significant expertise and prior experience will be required to enable you to plan and drive forward the work forward effectively.

KIAPS is a relatively new and compact institution, and is one of the few organizations in the world that has direct responsibility for the development of operational NWP systems for a national weather service, with a large degree of autonomy in decision making. Thus, a KIAPS scientist can have a major influence on NWP systems that have a direct impact on society, while developing their profile and publication record as a researcher.

While most of KIAPS's business is conducted in Korean, English-language levels are generally high amongst the research staff, so scientists who are fluent in English but have little or no knowledge of the Korean language should find the language barrier to be a relatively small concern. The KIAPS administration team includes English-speaking staff who are ready to help organize work visas, living arrangements, and so on.

The KIAPS offices are located in an attractive part of central Seoul, with excellent local facilities and first-class transport links to other parts of Seoul and beyond. For general information about KIAPS, please visit our Korean and English-language home page at [www.kiaps.org](http://www.kiaps.org).

Applications should be emailed to [recruit@kiaps.org](mailto:recruit@kiaps.org), which is also the contact point for general enquires about KIAPS or the application process.

**Director of KIAPS**

**The Korea Institute of Atmospheric Prediction System**

## I

## Job Description

※ You must meet qualifications requirements by the closing date of this announcement.

Field	Position Title	Number of Positions	Name of Institute (Location)
Data Assimilation	Senior Research Scientist	1	KIAPS (Seoul)

<b>Main Task</b>	<p>※ One of the following:</p> <ul style="list-style-type: none"> <li>○ Lead the development of the KIAPS coupled atmosphere-ocean data assimilation system</li> <li>○ Lead the development of ensemble-based radar reflectivity data assimilation methods</li> </ul>
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<b>Required Attributes &amp; Competencies</b>	<ul style="list-style-type: none"> <li>○ <b>(General Competency)</b> Fairness, Integrity, Responsibility, Customer Oriented</li> <li>○ <b>(Positional Competency)</b> Positivity, Problem-solving skills, Teamwork, English communication skill</li> <li>○ <b>(Functional Competency)</b> Analytical skills, Programming Skills, Technical Expertise</li> </ul>
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<b>Skills &amp; Knowledge</b>	<ul style="list-style-type: none"> <li>○ Proven ability (or clear potential) to lead development in the relevant area, with a focus on operational systems</li> <li>○ Proven ability to deliver high-quality research outputs in the field of numerical weather prediction</li> <li>○ Proven ability in developing scientific software</li> <li>○ Proficient verbal and written communication skills in English, as evidenced by published results and oral presentations. (Korean-language skill not required.)</li> </ul>
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<b>Required Qualifications</b>	<p><b>(Task-specific Experience)</b> Numerical optimization, ensemble prediction, variational data assimilation, and professional experience in ocean data assimilation</p>
	<p><b>(Academic Major)</b> Computer Science, Computer Engineering, Software Engineering, Atmospheric science (meteorology), Physics, Mathematics, Oceanography, Environmental Science/Engineering, Earth science, or a closely related field</p>
	<p><b>(Academic Degree and Subsequent Experience)</b> Applicants with at least one of the following:</p> <ul style="list-style-type: none"> <li>○ Ph.D. holder and more than 5 years of experience in a relevant field</li> <li>○ Master's degree and more than 10 years of experience in a relevant field</li> <li>○ Bachelor's degree and more than 15 years of experience in a relevant field</li> <li>○ Persons with equivalent or higher qualifications than described above</li> </ul>

<b>Extra Credits</b>	<ul style="list-style-type: none"> <li>○ <b>(Experience)</b> Having extra years of professional experience in a relevant field along with the required qualifications <ul style="list-style-type: none"> <li>- Experience developing changes for operational numerical weather prediction systems or Fortran 90 code for high-performance supercomputers</li> </ul> </li> <li>○ <b>(Research Performance)</b> Proven results including research outcomes</li> <li>○ <b>(Meteorology Certification)</b> Engineer Meteorology or Professional Engineer Weather Forecaster certificate holder</li> <li>○ <b>(Language)</b> Language proficiency test score holders of TOEIC, TOFEL, etc. (for national from non-native English-speaking countries)</li> </ul>
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<b>Additional Points by Law</b>	<p>If applicable, persons who are eligible for employment assistance should receive additional scores pursuant to the relevant</p> <ul style="list-style-type: none"> <li>○ Persons with employment assistance (within 10% of full score for the category)</li> <li>○ Persons with disabilities (within 5% of full score for the category)</li> </ul>
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## II

## Conditions of Employment

Classification	Main conditions	Remarks
<b>Period</b>	Until the end of 2026, when KIAPS project will span.	
<b>Working Hours</b>	Full time (Total 40 hours per week.)	The KIAPS regulations allow some flexibility of working schedule, within the hours 7am to 7pm, Monday to Friday.
<b>Location</b>	KIAPS (Dongjak-gu, Seoul).	-
<b>Pay</b>	<ul style="list-style-type: none"> <li>○ Set according to the KIAPS payment standards.</li> <li>○ Provide incentives according to research performance</li> </ul>	
<b>Employee Benefits</b>	<ul style="list-style-type: none"> <li>○ Enrollment in the four major Korean insurance schemes:               <ul style="list-style-type: none"> <li>① Employment Insurance</li> <li>② Industrial Accident Compensation Insurance</li> <li>③ National Pension</li> <li>④ National Health Insurance.</li> </ul> </li> <li>○ Enrollment in the KIAPS employee beneficial points system</li> <li>○ Settlement subsidy support, including organizing work visas and living arrangements.</li> </ul>	<p>Working conditions are negotiable based on the relevant regulations at KIAPS.</p> <p>The annual salary will depend on the candidate's career and expertise. Starting salaries will be in the range 67,000,000 ~ 140,000,000 Korean won per year.</p>

**Grounds for Disqualification**

- Disqualification according to any subparagraph of Article 33 of Korea's State Public Officials Act, or according to KIAPS regulations.
- Persons whose civil rights have been suspended or deprived by law.
- Evasion of Korean military service. (Male Korean nationals only.)
- Failure to submit the required documents.
- Submission of false information.
- A person who has been found to have been employed by another Korean public institution in an illegal manner and has been cancelled or dismissed from employment, and five years have not elapsed from the date of disposition

### III Application Documents

Category	Contents	Remarks
Required Documents	<p><b>Required documents for the initial application.</b></p> <p>※ <b><u>Mandatory Submission</u></b></p> <p>① Application (KIAPS official form, Attached file no. 3. is preferred)</p> <p>② Consent to Collection and Use of Personal Information (Attached file no. 4.)</p> <p>※ <b><u>If applicable,</u></b></p> <p>① Curriculum Vitae, including publication list</p> <p>② Research Statement &amp; a Copy of Dissertation</p> <p><b>Required documents prior to interview.</b></p> <p>① Copies of academic certificates/diplomas.</p> <p>② Copies of documents proving previous employment</p>	<p>Note that KIAPS follows the Korean blind recruitment procedure under the "Fair Hiring Practice Act", which asks to avoid collecting following information; candidate's age, names of universities enrolled in, names of former university advisors, or family relationships.</p> <p>Please do not attach a photograph of yourself to the application.</p>
Submission Method	<p>Please send the application documents via email to <a href="mailto:recruit@kiaps.org">recruit@kiaps.org</a>, with the subject "<b>Application for FIELD_TITLE</b>".</p>	
Application Period	<p><b>February 17, 2023 ~ March 16, 2023</b></p> <p>※The deadline will be extended, if a qualified candidate is not found.</p>	
Inquiries	<p>Recruitment office (E-Mail) <a href="mailto:recruit@kiaps.org">recruit@kiaps.org</a>/(Call) +82-2-6480-6321</p>	

### IV Recruitment Schedule

Stage	Date	Remarks
1 <sup>st</sup> stage (Document Screening)	TBD	Application can be written in Korean or English.

Stage	Date	Remarks
2 <sup>nd</sup> stage (Interviews)	TBD	<ul style="list-style-type: none"> <li>○ On-site interview for applicants currently residing in Korea.</li> <li>○ Online(WEBEX) interviews for applicants currently residing outside of Korea</li> </ul> <p>(Applicants who score 60% or over per test (expertise, disposition) with an average score of 60 points or above will pass. The position will be offered to the applicant with the highest score. (If only one person is being recruited and more than one person scores the same, interviews shall be held again for the respective applicants.))</p>
3 <sup>rd</sup> stage (Background Check)	TBD	Confirmation of evidential documents regarding the entries in the application.
Final Announcement	TBD	Individual notification.

※ The above schedule is subject to change depending on internal circumstances.

## V Applicant Precautions

- Failure to submit required documents will result in disqualification without advance notice. Please ensure to double-check all documents upon submission.
- A person who has been subject to legal discipline (especially for violent crimes such as sexual assault, sexual harassment, sex trafficking, and domestic violence) or has been suspended from the organization of employment at the time of the impropriety.
- If the contents of the application for examination differ from the contents of the documentary evidence, a separate committee will determine the severity of the error and decide whether to disqualify the application.
- Application revision or changes are not allowed after final submission.
- The selected applicants need to acquire and submit the necessary documents to be successfully obtain the proper working visa.
- Newly-recruited employees with a foreign nationality will be requested to submit a criminal background check issued by their government agency in order for us to issue the work visa.
- The schedule and contents of the recruitment process are subject to change depending on internal circumstances, and changes shall be notified individually to affected applicants.
- In the event of any discrepancy between the English and the Korean job announcement, the Korean version shall take precedent.

- Submitted documents, including application documents, shall be returned if requested according to the following procedure.
- Basis: 「Hiring Procedure Act」 Article 28 (Return of Hiring Documents)
  - Submission Method: email to [recruit@kiaps.org](mailto:recruit@kiaps.org)
  - Other remarks: All provided documents shall be destroyed after the above-stated application period for return. Requests for return after this period will not be accepted.

[Attachment]

- 1. Job Description in Korean**
- 2. Job Description in English**
- 3. Application Form**
- 4. Consent to Collection and Use of Personal Information**