



APCC 기후자료서비스 플랫폼

APCC Climate Data Service Platform

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APEC 기후센터 예측운영과

2020. 10. 6 ~ 7

2020 APCC 기후예측정보 활용을 위한 이론 및 기술교육 워크숍

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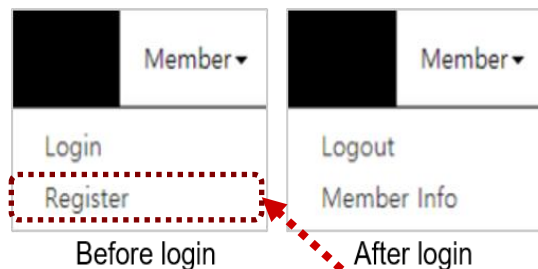
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I 사용자 등록

<https://cliks.apcc21.org>



Climate Information Toolkit (CLIK) Home Dataset My Jobs CLIK API Manual Help Desk Member

① ② ③ ④ ⑤ ⑥

Climate Information Toolkit (CLIK)

CLIK provides the climate prediction data produced and managed by APCC.
Users can download digitized climate data in familiar ways.

[Download Data](#)

Notice
CLIK provides digitized APCC Multi-Model Ensemble Prediction, Individual Model, and Clipped CIMP5 Data.
[Learn More](#) ⑦

Open API
The CLIK Open Application Program Interface (API) is a programmable interfacing service that supports accessing CLIK climate data in user programs.
[Learn More](#) ⑧

Comment & Feedback
Please give us new suggestions and comments about CLIK.
[Feedback](#) ⑨

I APCC SSO (Single Sign On System) 사용자 등록

APCC Single Sign On System

Agreement of Getting Personal Information

AGREEMENT TO COLLECTING PERSONAL INFORMATION & PRIVACY POLICY
- APEC Climate Center -

[PURPOSE FOR COLLECTING AND USING PERSONAL INFORMATION]

We collect and use the information that you provide for the following purposes:

- (1) To provide customized information
- (2) To manage website usership, such as maintaining a membership database, member identification, and transmitting announcements
- (3) To gauge and improve the effectiveness of the website and services

We will automatically collect and store the following information during your visit.

- (1) Your IP address
- (2) The date and time you access our site
- (3) The pages you visit; and
- (4) The type of browser and operating system used to access our site

If there are any changes concerning the privacy policy, members will be notified for their approval.

☐ I read the contents and I Agree

- Check your name and E-mail for uniqueness property

First Name

Last Name

E-mail

[apply](#)

I NetCDF (Network Common Data Form)

A set of software libraries and machine independent data formats

- Support the creation, access, and sharing of array-oriented scientific data

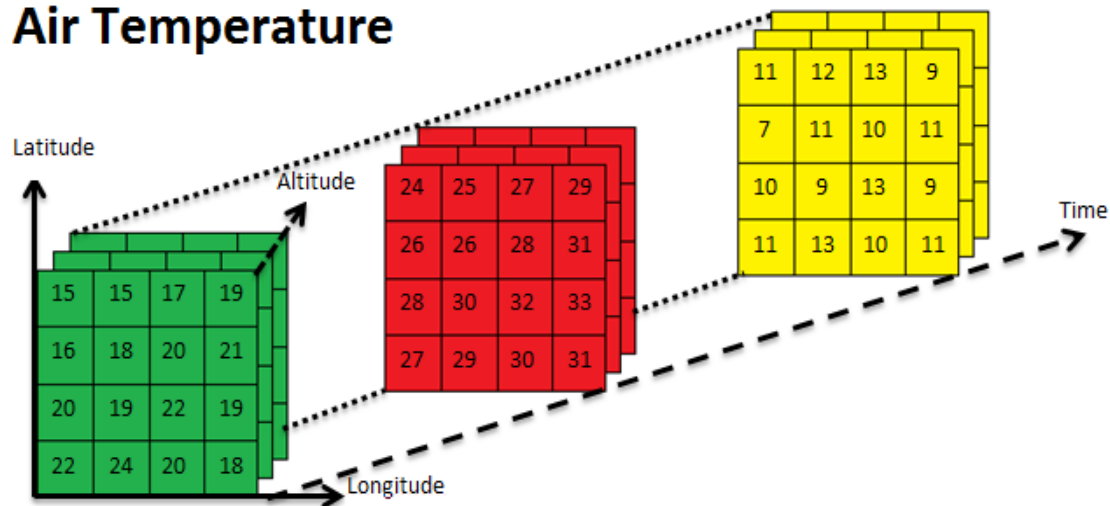
Support in many programming languages and tools

- Fortran, C/C++, Python, MATLAB, IDL, etc.

Many references

- Data, example, programmers, etc.

Air Temperature



```
netcdf file:XXX.nc {
  dimensions:
    time = UNLIMITED;
    z = 14;
    lat = 96;
    lon = 80;
  variables:
    float O3(time=24, z=14, lat=96, lon=80);
      :long_name = "Ozone concentration";
      :standard_name = "mass_concentration_of_ozone_in_air";
      :unit = "microgram/m3";
      :missing_value = NaN; // double

    float NO2(time=24, z=14, lat=96, lon=80);
      :long_name = "NO2 concentration";
      :standard_name = "mass_concentration_of_nitrogen_dioxide_in_air";
      :unit = "microgram/m3";
      :missing_value = NaN; // double

    ....
  // global attributes:
    :Conventions = "CF-1.4";
    :title = "File Title";
    :summary = "Summary of the file";
    :keywords = "KEYWORDS, TO, USE";
    :history = "Long History";
}
```


| ncdump를 이용한 확인

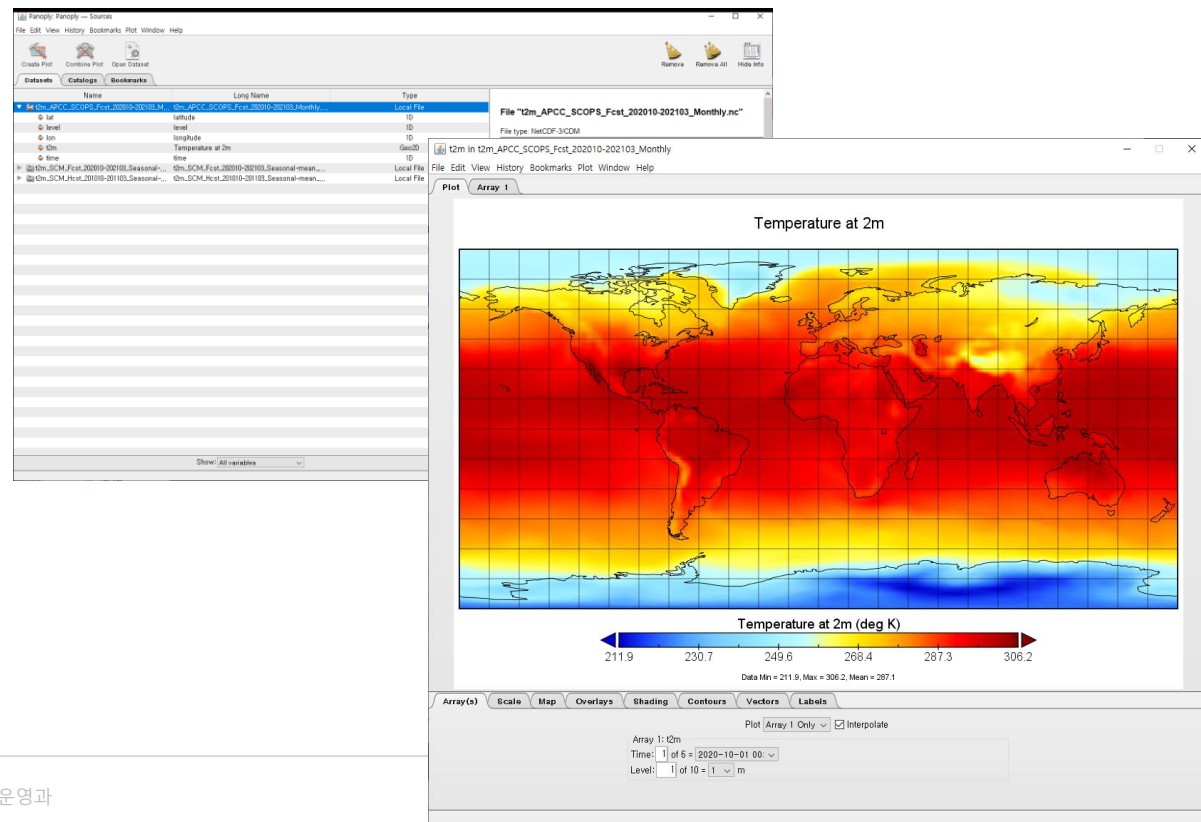
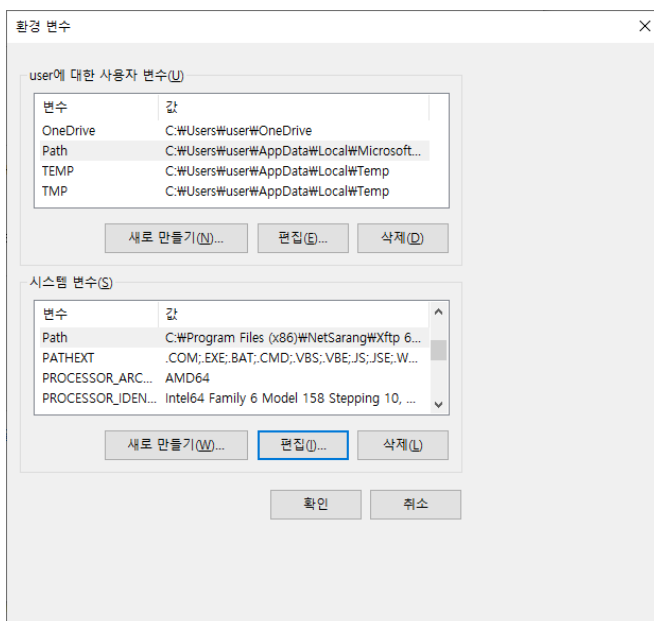
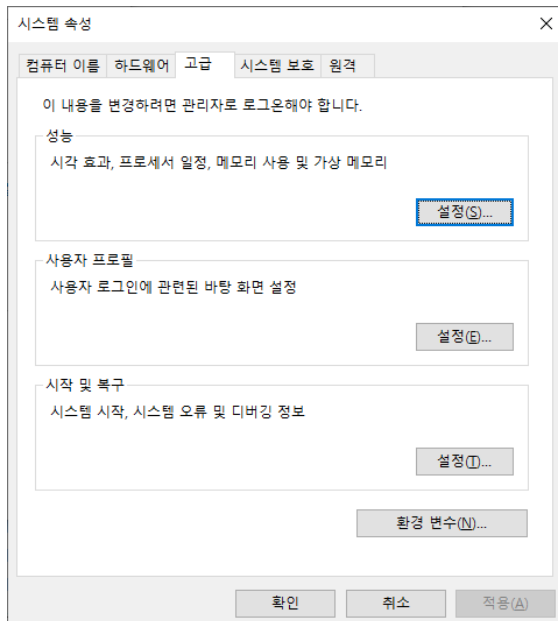
USB/2020 APCC 기후정보활용 교육워크숍 강의자료/1006_기후자료서비스플랫폼

- | ncdump 실행 폴더를 개인 노트북 PC에 복사
- | netcdf-3.5.0.win32bin.ZIP 압축해제 및 환경설정
- | (환경설정을 하지 않을 경우 bin 폴더로 샘플 nc 파일 복사)
- | ncdump 로 샘플 nc 파일 확인 / ncdump -h로 샘플 nc 파일 확인

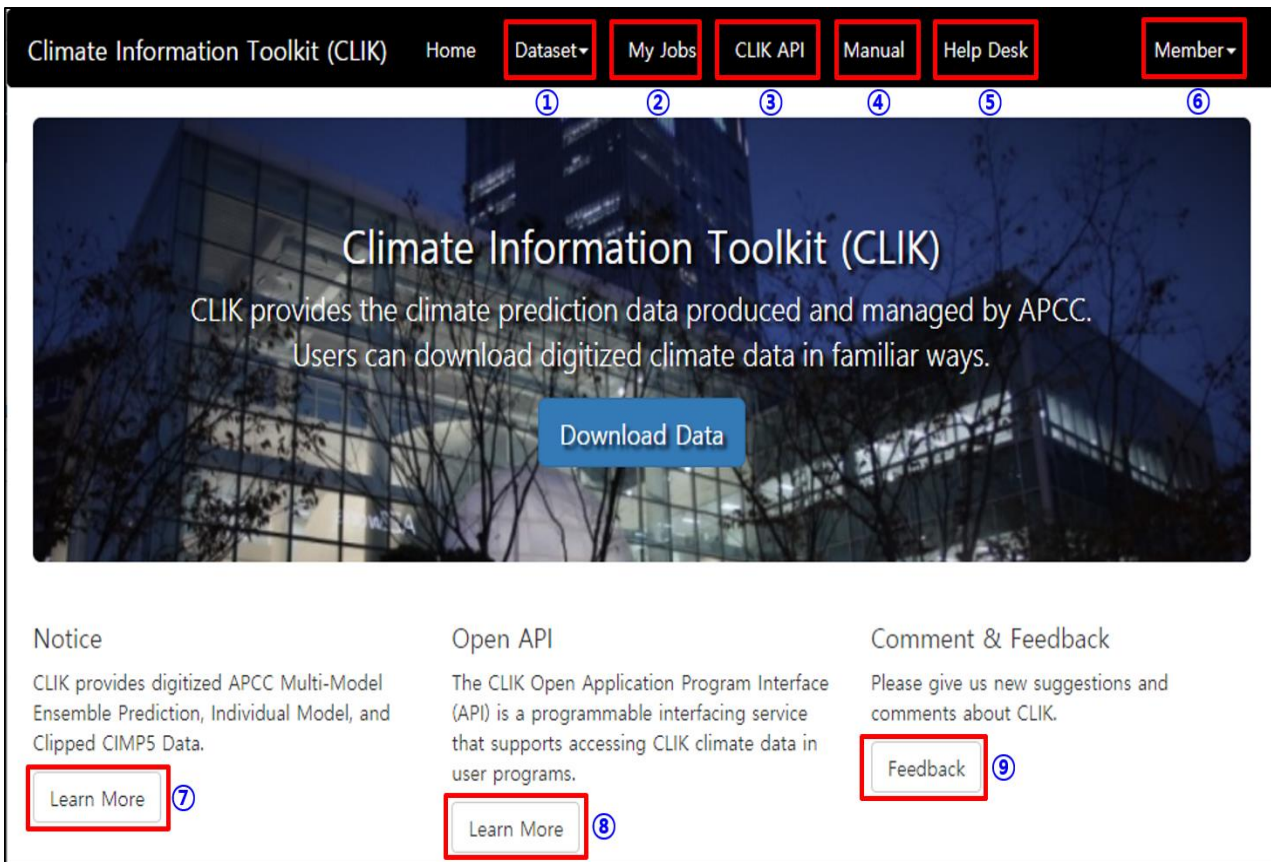
| Panoply를 이용한 확인

USB/2020 APCC 기후정보활용 교육워크숍 강의자료/1006_기후자료서비스플랫폼

- | Panoply_실행 폴더를 개인 노트북 PC에 복사
- | PanoplyWin-4.11.6.zip 압축해제
- | panoply 로 샘플 nc 파일 확인



I 웹 인터페이스



I 메뉴 설명 및 실습

메뉴	설명
① Dataset	각 자료의 개요(Overview)와 다운로드 서비스를 제공한다.
② My Jobs	사용자의 Job 목록 및 처리 현황을 확인할 수 있다. 이 메뉴는 로그인 후 이용할 수 있다.
③, ⑧ CLIK API	API를 사용하는 방법 및 예제를 제공한다.
④ Manual	사용자 매뉴얼을 보거나 다운로드할 수 있다.
⑤, ⑨ Help Desk	서비스에 대한 이용 문의를 하거나 서비스에 대하여 제안사항이 있거나 오류 및 불편 사항이 있으면 Feedback할 수 있다.
⑥ Member	로그인 및 신규 가입할 수 있다.
⑦ Notice	서비스의 공지를 확인할 수 있다.

I 웹 인터페이스

Climate Information Toolkit (CLIK) Home Dataset My Jobs CLIK API Manual Help Desk Member

① ② ③ ④ ⑤ ⑥

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[Feedback](#) ⑨

I 다운로드 실습 1

2020년 APCC MME (6개월) 강수, 850hPa 기온 계절평균을 모두 다운로드

| Forecast / SCM(DMME)

| prec / t850

| Seasonal mean / 2020

다운로드한 자료 ncdump/Panoply로 확인

I 다운로드 실습 2

2020년 APCC SCOPS 10월 강수 예측자료 다운로드

| Forecast / SCOPS / prec

| 2020. 10

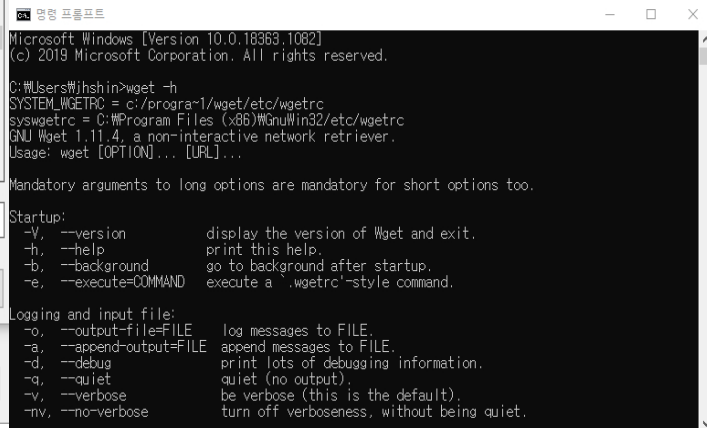
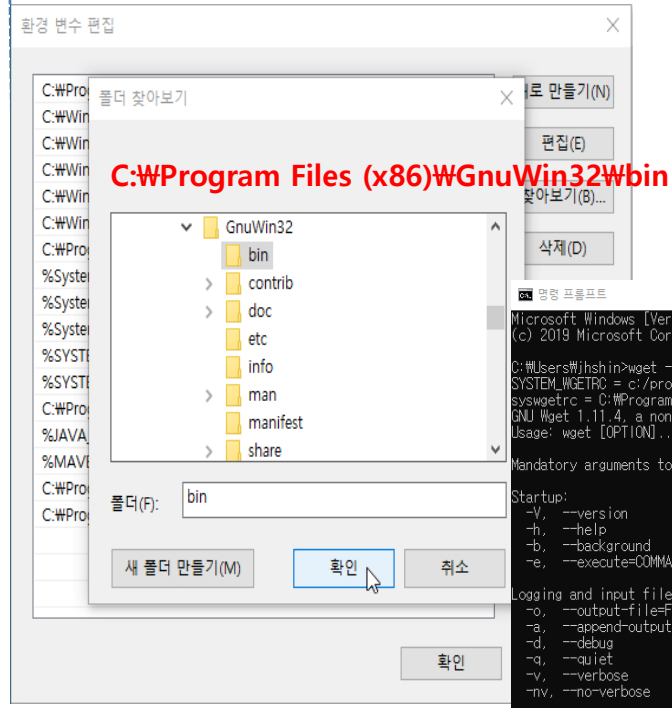
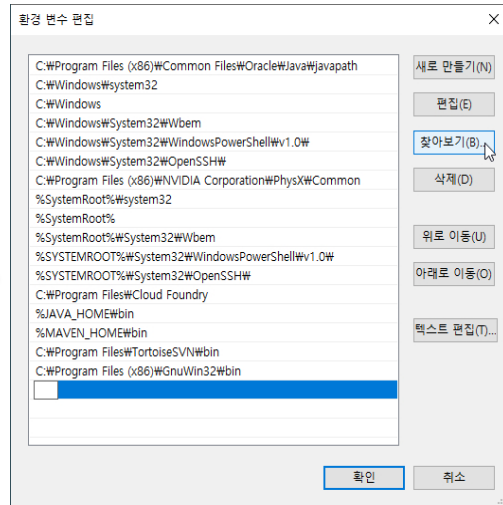
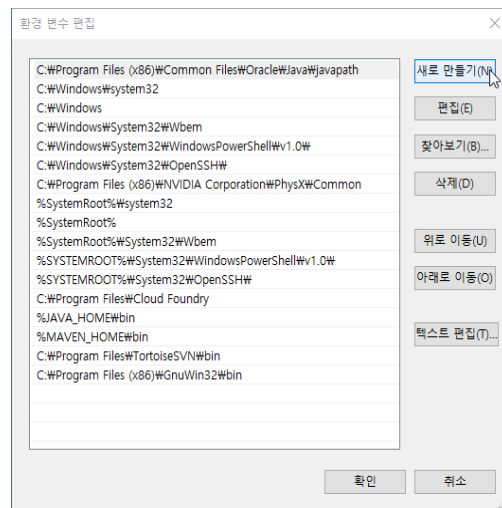
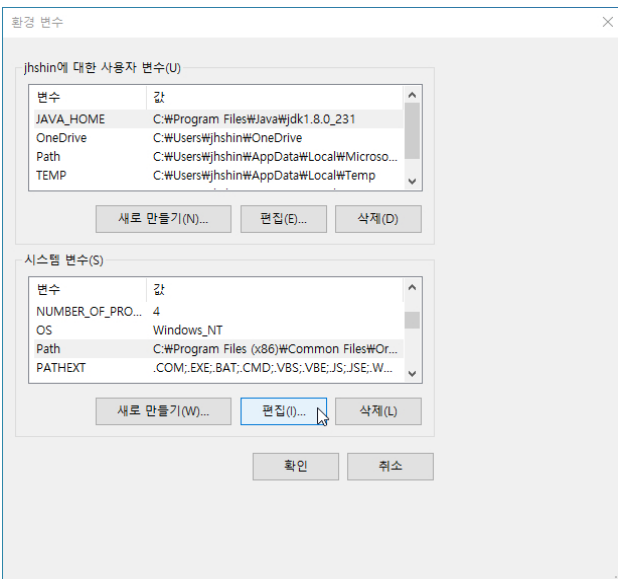
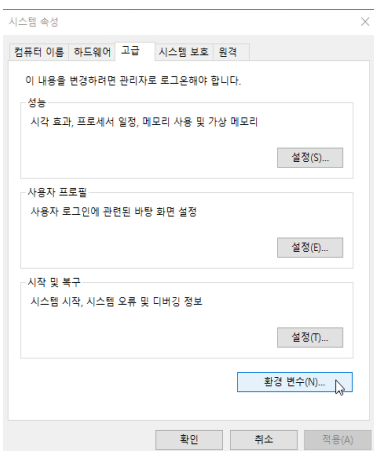
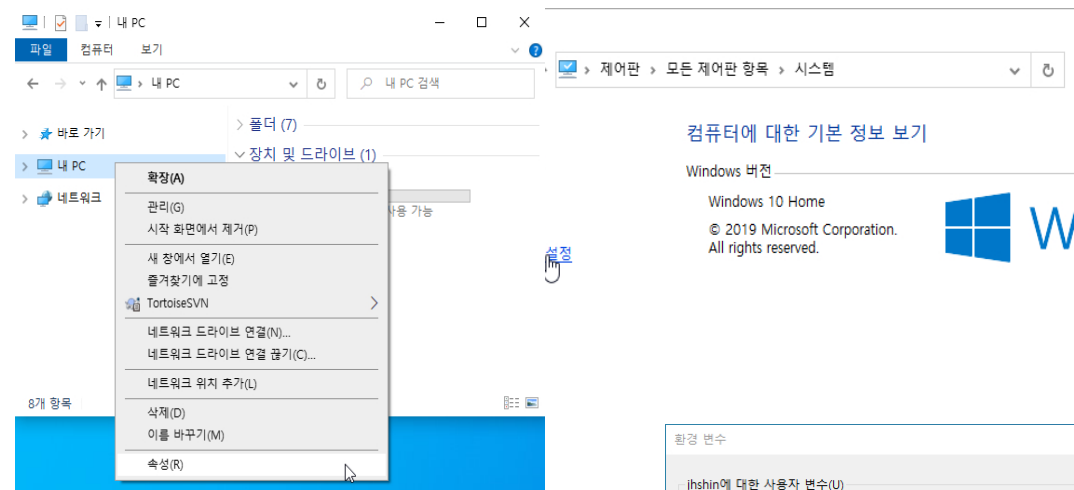
다운로드한 자료 ncdump/Panoply로 확인

Wget 윈도우버전 설치 및 설정

USB/2020 APCC 기후정보활용 교육워크숍 강의자료/1006_기후자료서비스플랫폼

| Wget_윈도우 폴더를 개인 노트북 PC에 복사

| wget-1.11.4-1-setup.exe.zip 압축해제 및 설치



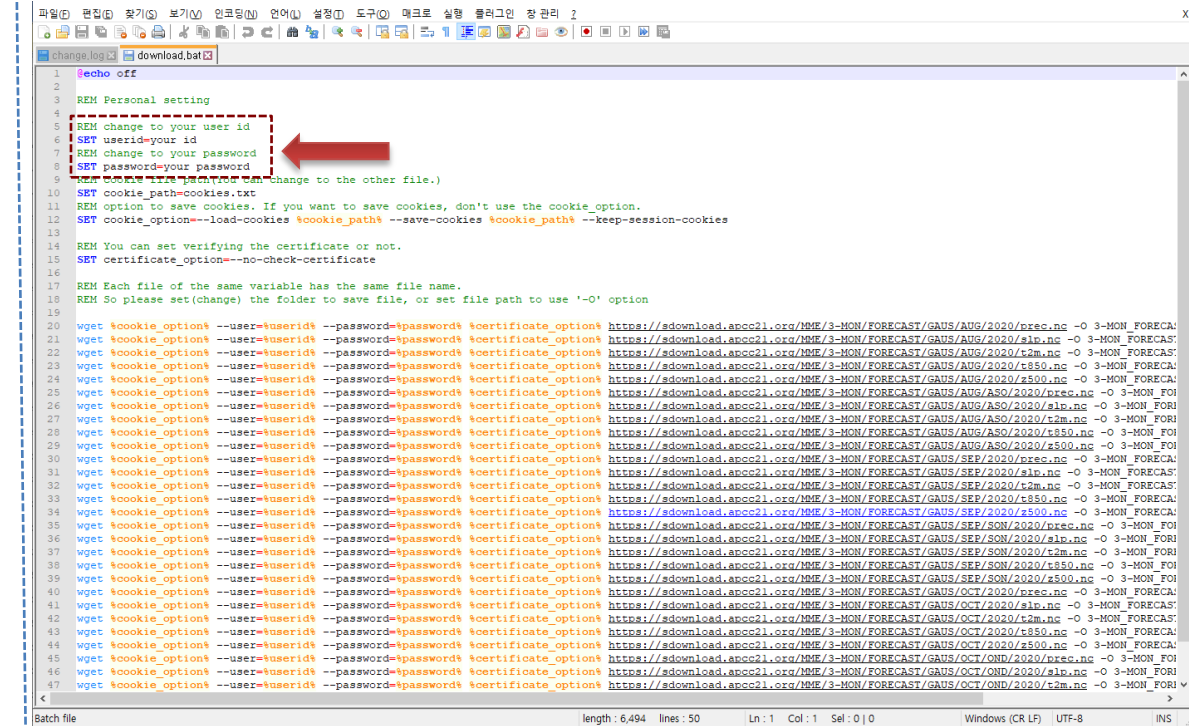
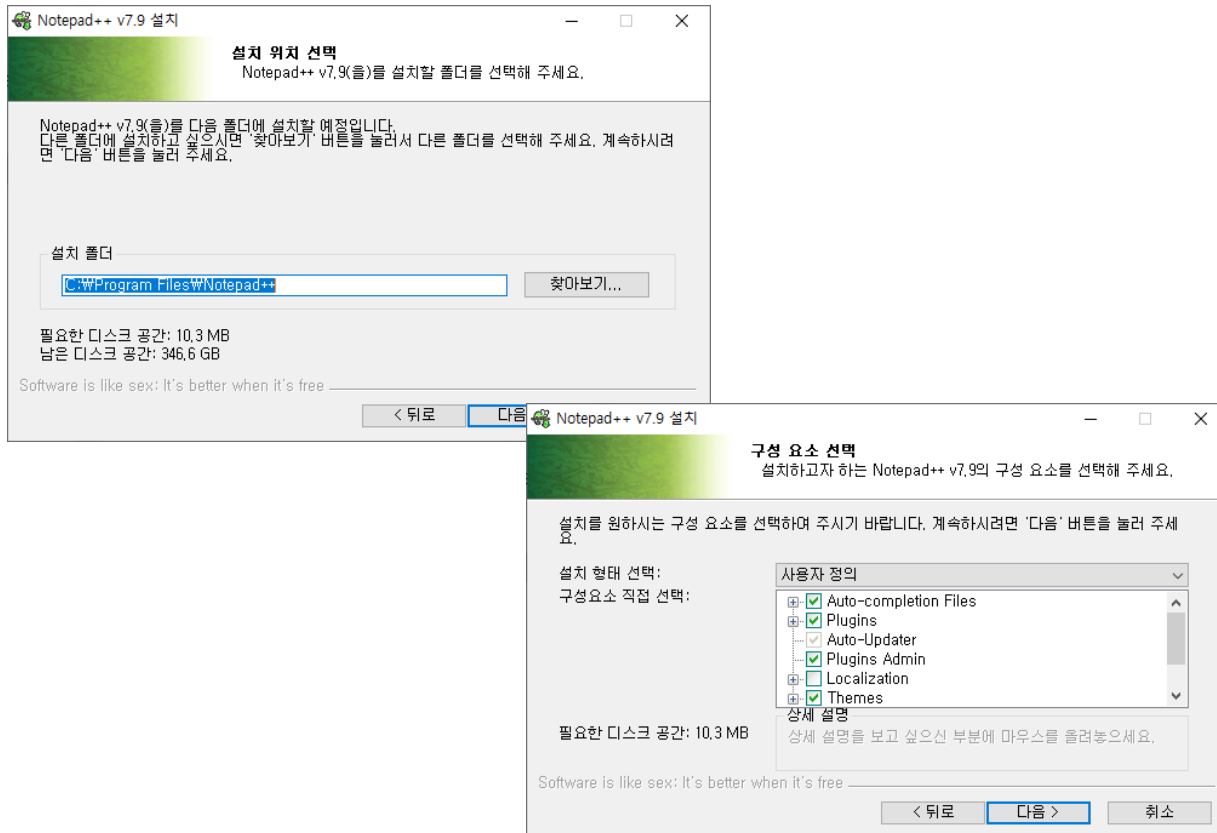
| Wget 스크립트 실행

USB/2020 APCC 기후정보활용 교육워크숍 강의자료/1006_기후자료서비스플랫폼

| Script 폴더를 개인 노트북 PC에 복사

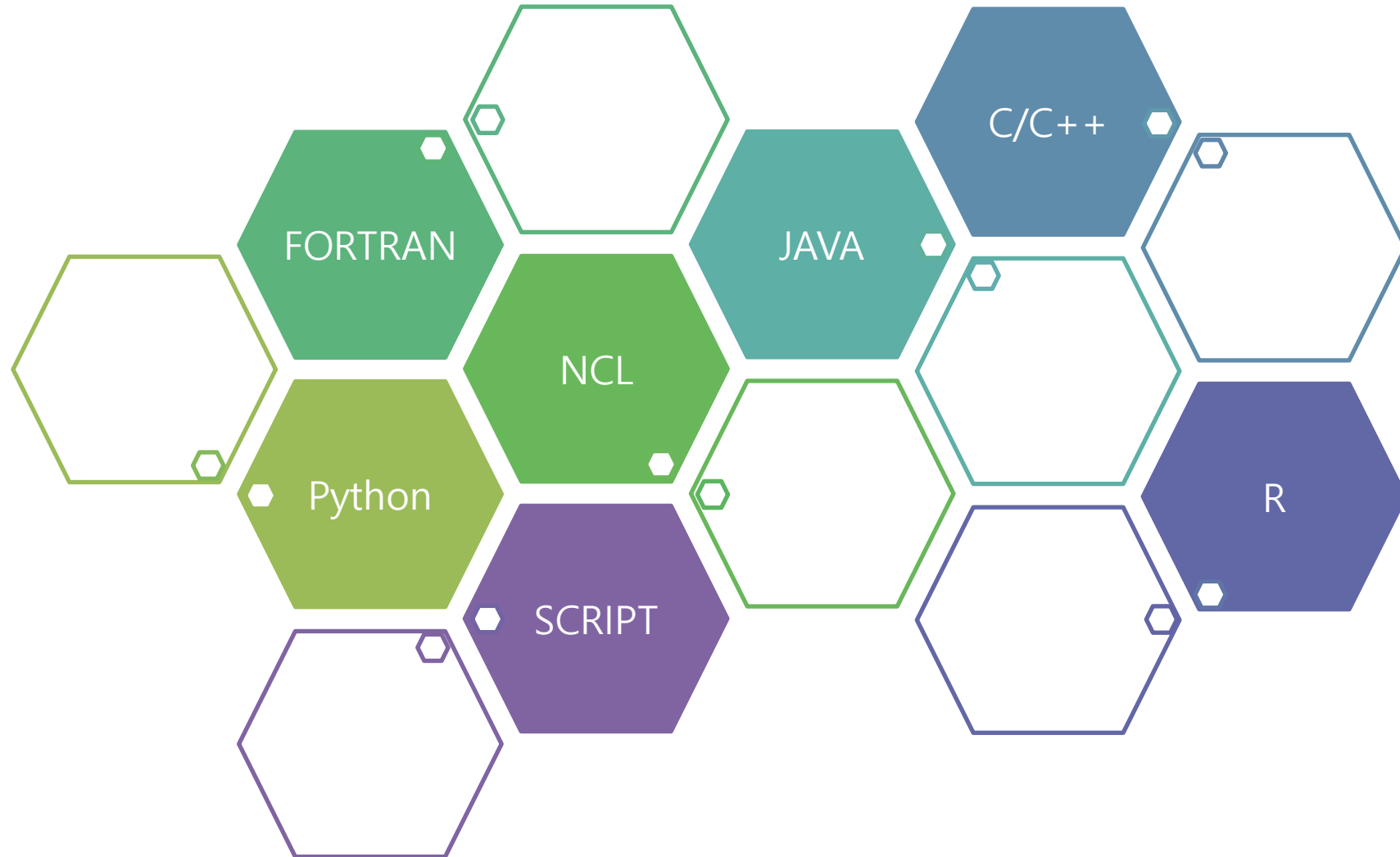
| download.bat 파일 편집 (ID/Password 입력) → NPP 설치 및 사용 추천

| download.bat 파일 실행



2020년 APCC MME (3개월) 예측자료 다운로드
다운로드한 자료 ncdump/Panoply로 확인
| 3-MON_FORECAST_GAUS_OCT_2020_prec.nc

| Programming Language ?!?!

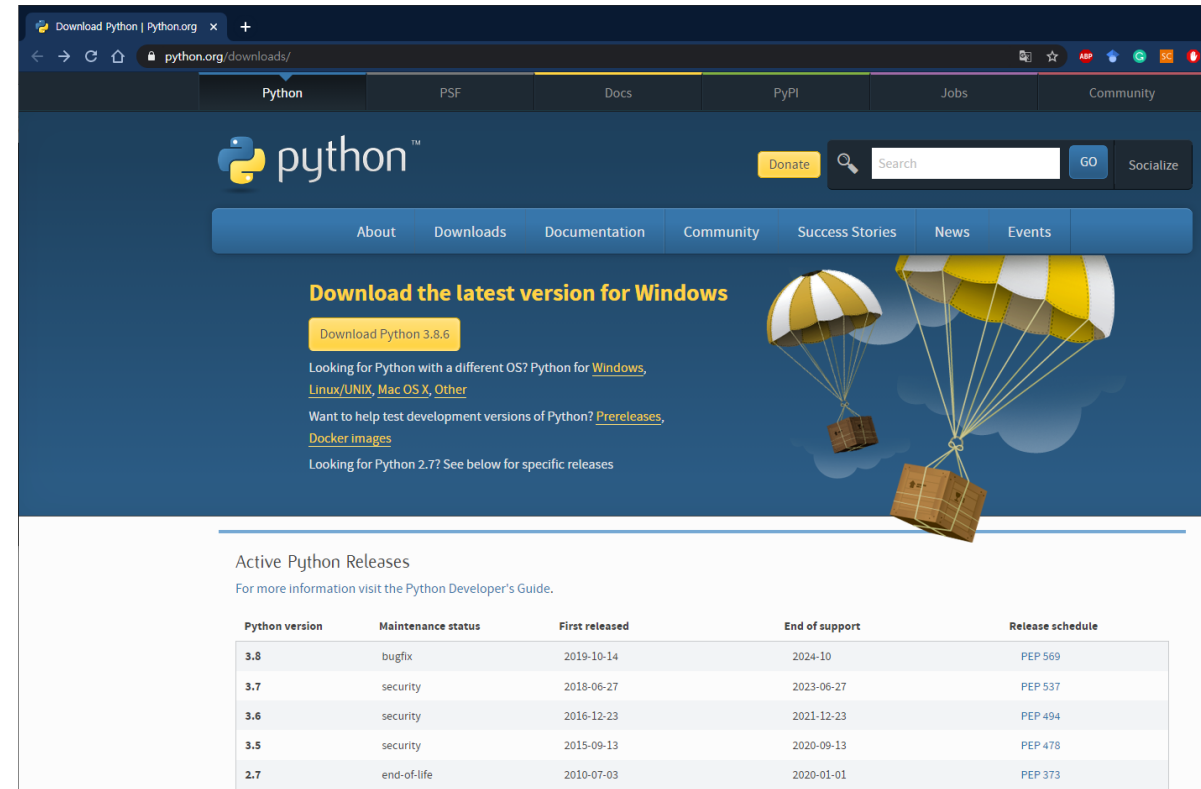
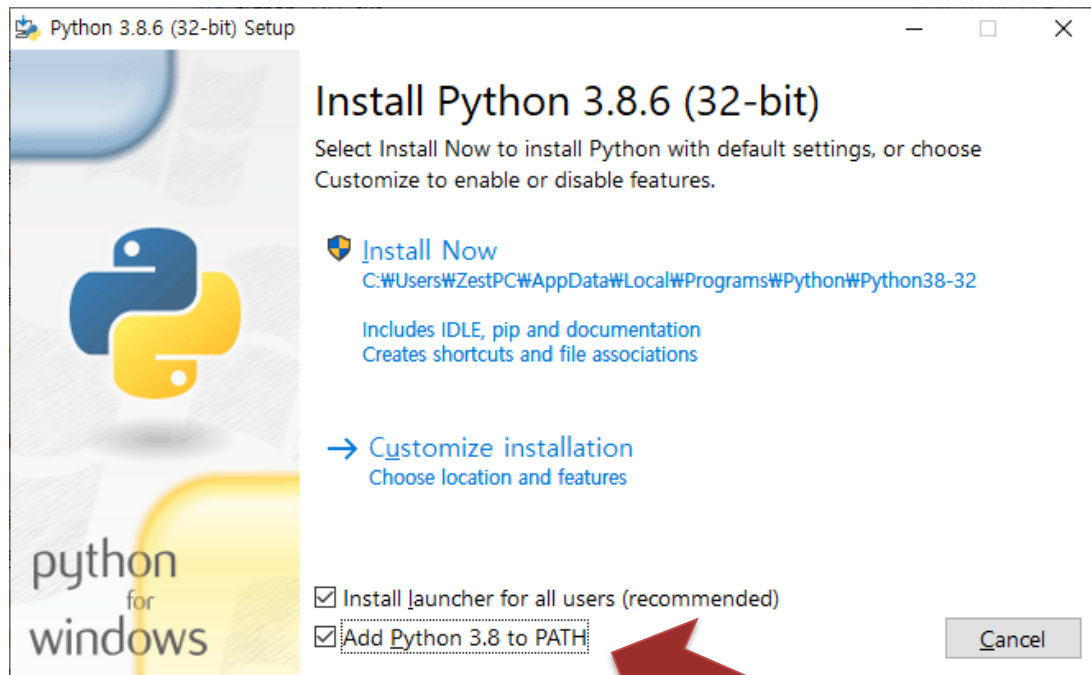


| Python 설치 [윈도우용]

USB/2020 APCC 기후정보활용 교육워크숍 강의자료/1006_기후자료서비스플랫폼

| Python 폴더를 개인 노트북 PC에 복사

| python-3.8.6.exe 실행



<https://python.org>

반드시 Check!!!!

| Open API 준비작업

기후자료서비스 플랫폼 홈페이지 CLIK API 접속

- | apccapi.tar.gz 다운로드 및 작업폴더로 이동
- | 압축해제 및 USB Open_API 폴더의 샘플 python (*.py) 복사

requests 패키지 설치 및 환경 설정

- | 명령 프롬프트 실행
- | pip install requests

```

C:\temp\pythontest>pip install requests
Collecting requests
  Using cached requests-2.24.0-py2.py3-none-any.whl (61 kB)
Requirement already satisfied: chardet<4,>=3.0.2 in c:\users\jhshin\appdata\local\programs\python\python38\lib\site-packages (from requests) (3.0.4)
Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in c:\users\jhshin\appdata\local\programs\python\python38\lib\site-packages (from requests) (1.25.10)
Requirement already satisfied: idna<3,>=2.5 in c:\users\jhshin\appdata\local\programs\python\python38\lib\site-packages (from requests) (2.10)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\jhshin\appdata\local\programs\python\python38\lib\site-packages (from requests) (2020.6.20)
Installing collected packages: requests
Successfully installed requests-2.24.0
WARNING: You are using pip version 20.2.1; however, version 20.2.3 is available.
You should consider upgrading via the 'c:\users\jhshin\appdata\local\programs\python\python38\python.exe -m pip install --upgrade pip' command.
    
```

```

C:\temp\pythontest>set HOME=%USERPROFILE%

C:\temp\pythontest>echo %HOME%
C:\Users\jhshin

C:\temp\pythontest>
    
```

The screenshot shows the CLIK API website interface. The top navigation bar includes links for Home, Dataset, My Jobs, CLIK API, Manual, and Help Desk. The main heading is "How to use CLIK API". Below this, there are tabs for Python and Java. The Python tab is selected, showing instructions on how to use the CLIK API. The instructions include setting the API key, installing the API client, and using the API client. A sample Python script is provided, demonstrating how to use the CLIK API to retrieve data. The script is as follows:

```

1 import apccapi
2
3 c = apccapi.Client()
4
5 c.retrieve(
6     {
7         'jobtype': 'MME',
8         'dataset': 'MME_3MONTH',
9         'type': 'FORECAST',
10        'method': 'SCM',
11        'variable': ['prec', 't2m'],
12        'period': ['Monthly mean'],
13        'yearmonth': ['201909']
14    },
15    'mme.zip'
16 )
17
    
```

The script is saved as test_mme.py in a text editor. The status bar at the bottom indicates the file is a Python file, with a length of 247, 17 lines, and is using Unix (LF) line endings and UTF-8 encoding.

| Open API로 기후자료 다운로드

기후자료서비스 플랫폼 홈페이지 CLIK API 접속

- | apccapi.properties 파일 생성 및 편집
- | Open_API 폴더의 샘플 실행 / python test_mme.py

```

명령 프롬프트
C:\wtemp\pythontest>python test_mme.py
<Response [202]>
[2020-10-06 09:09:16,760] [INFO] Hello jhshin77.
[2020-10-06 09:09:16,760] [INFO] Your job id is 5f7bb5ad360849000ee10323
[2020-10-06 09:09:16,760] [INFO] Request is Queued
[2020-10-06 09:09:19,867] [INFO] Request is Complete
[2020-10-06 09:09:19,867] [INFO] Start to save file - mme.zip
[2020-10-06 09:09:19,867] [INFO] Done

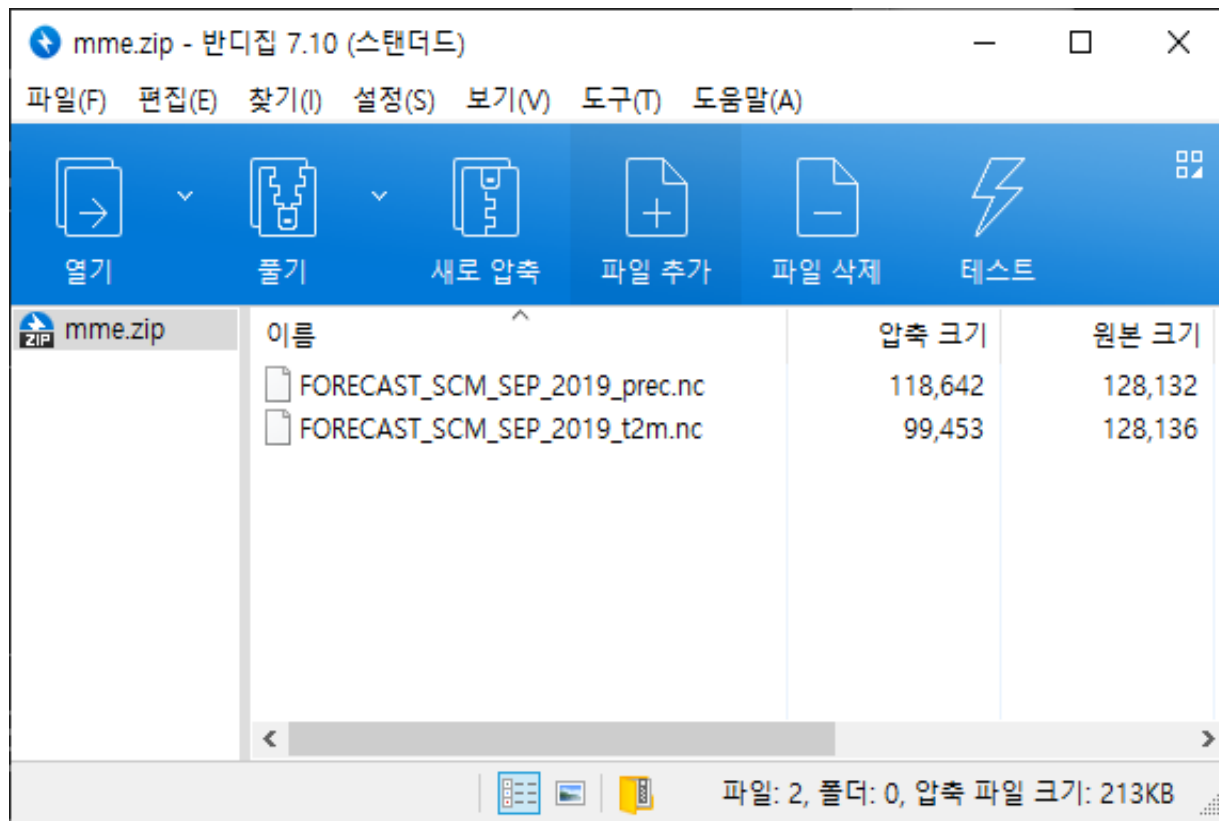
C:\wtemp\pythontest>dir
C 드라이브의 볼륨에는 이름이 없습니다.
볼륨 일련 번호: ACF7-A2A5

C:\wtemp\pythontest 디렉터리
2020-10-06 오전 09:09 <DIR> .
2020-10-06 오전 09:09 <DIR> ..
2020-10-06 오전 08:32 <DIR> apccapi
2020-10-06 오전 09:09 218,415 mme.zip
2020-10-06 오전 08:32 153 test_cmip5.py
2020-10-06 오전 08:32 247 test_mme.py
2020-10-06 오전 08:32 275 test_model.py
4개 파일 219,090 바이트
3개 디렉터리 123,272,818,688 바이트 남음

C:\wtemp\pythontest>
    
```

다운로드된 mme.zip 압축해제 및 확인

- | 압축해제
- | Panoply, ncdump 등으로 확인





Thank You !!

An Introduction to APCC Climate Information Service