MEMBER REPORT

Democratic People's Republic of Korea

ESCAP/WMO Typhoon Committee
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Contents

Ⅰ. Overview of tropical cyclones which affected/impacted member's area since the last Committee Session

1. Meteorological Assessment

DPRK has been impacted by typhoon-related disasters because it is located in monsoon area of East-Asia.

Our country was affected by five typhoons in 2022.

Among them, one typhoon affected indirectly and four typhoons directly.

Those typhoons were described in detail.

(1) Typhoon 'SONGDA'(2205)

SONGDA was formed over southeastern part of Okinawa Island, Japan at 1200UTC on July 28.

It moved northwestward and reached in southern east sea of Okinawa Island at 1200UTC on July 29 with the Minimum Sea Level Pressure of 1000hPa and Maximum Wind Speed of 20m/s, and continued to move northward, and weakened into a tropical depression in southern part of Korean west sea at 1800 UTC July 31.

After then, it moved northward, and affected continuously our country.

Owing to the impact of SONGDA, average precipitation was 67mm nationwide and maximum precipitation was 315mm by heavy rain in the middle, southern and eastern parts including Sepo, Kimchaek, Yangdok, and Ongjin county.

(2) Typhoon 'TRASES'(2206)

TRASES was formed over near sea of Okinawa Island, Japan at 0300UTC on July 31.

It moved northward and reached around western part of south JonRa Province at 0600UTC on August 1 and then, weakened into a tropical depression over sea of GunSan Gulf at 1200 UTC on August 1. At the moment, its Minimum Sea Level

Pressure was 1004hPa.

Typhoon ‘TRASES’ was combined with Typhoon ‘SONGDA’, and our country was affected by it.

(3) Typhoon ‘HINNAMNOR ’(2211)

HINNAMNOR formed over southeastern part of Tokyo, Japan at 0300UTC on August 28 with Minimum Sea Level Pressure of 1004hPa and Maximum Wind Speed of 18m/s.

It moved southwestward and reached around the eastern part of Taibei, China at 1500UTC on September 1and almost remained two days in adjacent sea.

And then, it moved northward and passed through eastern part of Jeju Island, and continued to move northeastward and weakened into a tropical depression in the northern part of Korean East Sea at 1200 UTC on September 6.

HINNAMNOR affected indirectly our country, due to the cold air occupied our country.

Under the impact of HINNAMNOR, it rained and showered all over the country.

Accumulated rainfall was more than 150mm in KangWon Province, southern parts of South and North HwangHae Province and KaeSong city from 4^{th} to 6^{th} September.

Under the impact of HINNAMNOR, gales more than 10m/s were observed in CholWon, YonAn and HyoeChang County on September 6.

(4) Typhoon ‘MUIFA’(2212)

MUIFA formed over eastern sea of Philippine at 0900 UTC on September 8.

It passed through eastern sea of Taibei and ShangHai, China and moved along the eastern coast of China and weakened into a tropical depression in the northern coast of ShanDong Peninsula, China at 0900UTC on September 16.

The character of MUIFA was that came rarely along the eastern coast of China but typhoons coming to our country in September used to move Korean East Sea.

Due to the northwestern pacific subtropical anticyclone expanded to the eastern coast of China, MUIFA moved along such track.

Under the impact of MUIFA and a depression, it rained all over the country including north PyongAn and JaGang Province from 14th to 17th September.

During this period, accumulated rainfall was more than 100mm in several areas of north PyongAn and JaGang Province including 130mm in SinYiJu, 125mm in PiHyon and ManPo, 121mm in SuPung, and 120mm in Sijung County.

Average precipitation was 36mm nationwide, and 82mm in North PyongAn, 70mm in JaGang, 46mm in KangWon, 20-37mm in south PyongAn, North and South HamGyong and 7-17mm in other provinces.

Under the impact of MUIFA, gales more than 10m/s were observed in HaeJu, KaeSong, HyoeChang, and SePo county on September 14, in YomJu and RyongChon county on September 16.

In particular, gales more than 10m/s were observed in YomJu and RyongChon county for 10 hours on September 16.

(5) Typhoon ‘NANMADOL’(2214)

NANMADOL formed over southeastern sea of Okinawa island, Japan at 0300 UTC on September 14.

It continued to move northwestward and landed on KyuSyu island, Japan on September 18 and turned northwestward and moved along the western coast of Japan and weakened into a tropical depression in the eastern sea of Japan at 0900UTC on September 20.

The character of NANMADOL was that intensity is the strongest among typhoons of this year and there was a cold and dry gale in almost areas.

Especially, there were gales of 15-16m/s in some parts of north PyongAn Province, south Pyong An Province, north HamGyong Province and RyangGang Province

including PiHyon, RyongYon, ODaeJin, Mt.PaekDu and NamPo.

Under the impact of NANMADOL, it rained in some areas of KangWon Province including KoSong, AnByon, KumGang, WonSan and MunChon county from dawn till morning on September 19, and especially it was observed heavy rain of 58mm per 3 hours in KoSong County.

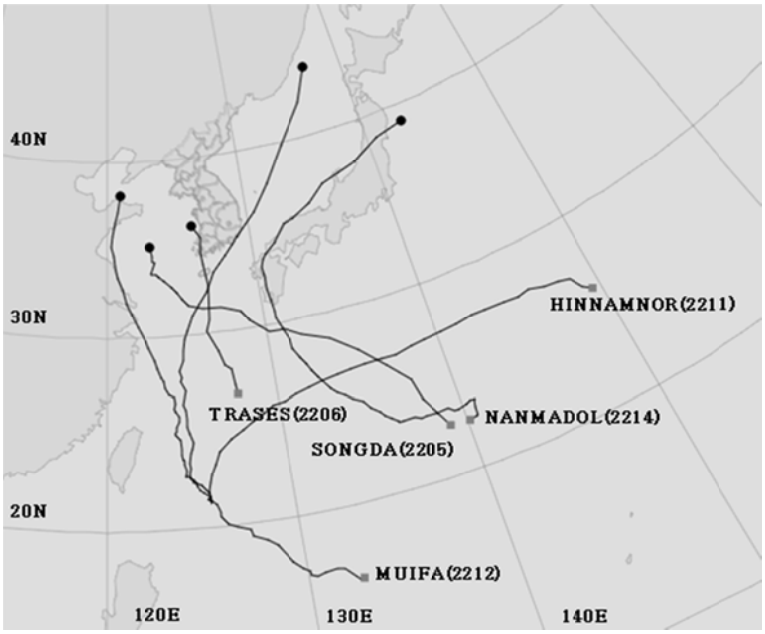

Figure 1. Tracks of typhoons affected in Korean Peninsula

2. Hydrological Assessment

Our country was indirectly affected by five typhoons including SONGDA, TRASES, HINNAMNOR, MUIFA and NANMADOL in 2022.

These typhoons caused gales, heavy rain and torrential rain, but there was no great damage in several sectors in our country.

3. Socio-Economic Assessment

Recent years, our country affected by several typhoons.

This year, our country affected with heavy rain by SONGDA, TRASES , HINNAMNOR and MUIFA and with gale by MUIFA and NANMADOL.

This year, there was no great damage but our country affected by typhoons several times.

4. Regional Cooperation Assessment

During the last period, we used typhoon bulletin from Tokyo, NWP products of ECMWF, CMA, JMA and NCEP for monitoring and forecasting typhoons.

These data played an important role in forecasting typhoons and reducing typhoon-related disasters in our country.

Also, observed data from surrounding countries were received every 3 hours and efficiently used for typhoon monitoring and early warning.

It is still important that typhoon information issued from typhoon centers should be improved and cooperation between members should be strengthened.

Ⅱ. Summary of Progress in Priorities supporting Key Result Areas

1. Improvement of Typhoon Forecasting

We have developed the after treatment processes in order to improve accuracy of typhoon occurrence and dissipation this year.

We will continue to improve the forecasting method on typhoon occurrence and dissipation.

2. Update of "TOPS"

We had developed Typhoon Operational Prediction System (TOPS) and used efficiently for typhoon monitoring and forecasting.

Also, we have developed new version of TOPS which enables us to do typhoon monitoring, analyzing, forecasting and informing automatically in 2021.

This year, we have added new process which enables us to do judgment of typhoon occurrence and dissipation objectively.

3. Improvement of Typhoon Information Service

State Hydro-Meteorological Administration (SHMA) has continuously paid a great attention to the improvement of typhoon information, due to the increasing social demand on meteorological forecast data.

SHMA has disseminated common sense on typhoon via TV and computer network, and it enabled many people to be fully prepared to cope with typhoon.

SHMA will make greater efforts to improve typhoon information services in the future.

4. Effort for Reducing Typhoon-related Disasters

All activities for reducing typhoon damage have been coordinated by the government in our country.

The government of DPRK had previously organized the work to minimize typhoon-related disasters at national level based on the detailed information analysis on upcoming typhoon.

The government of DPRK had predetermined that our country has been affected by typhoon every year, and took far-sighted measures for reduction of typhoon disaster risk.

The government of DPRK had reinforced typhoon forecast force and paid attention to the measures for flood control.

Far-sighted measures of the government became a great contribution to prevent typhoon -related disasters.

5. Strengthening Regional Cooperation

Typhoon Committee plays an important role in strengthening regional cooperation between members.

Under the active efforts of Typhoon Committee and members, regional cooperation for forecasting typhoon-related disasters and reducing damages should be strengthened in the future.