



# Make Proactive Prevention and Effective Measures against Typhoons

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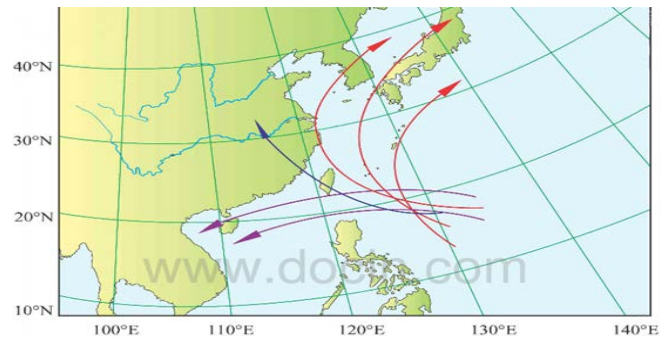


# Introduction

- **A typhoon is a tropical cyclone that develops in the northwestern part of the Pacific Ocean between  $180^{\circ}$  and  $100^{\circ}$  E (Chris Landsea Jun.2010).**
- **Coastal areas in China are in northwest part of the Pacific Ocean, where are most inclined to typhoons**



# Typhoons in China



Typhoon Utor 2013.8.16



Typhoon Haikui & Saola & Damrey approaching in 5 days



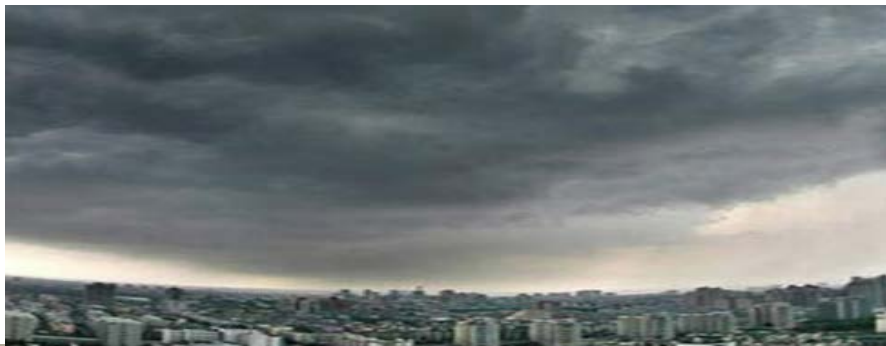
# Introduction

- **It cause large quantity of cargo losses and even many human lives losses every year.**
- **It is imperative to make rational and science-based judgment of typhoons by studying and analyzing the data of it.**
- **To take the effective measures, initiative in the efforts of preventing against typhoons**





## Make Proactive Prevention and Effective Measures against Typhoons





## Make Proactive Prevention and Effective Measures against Typhoons

### 1. Ships

- Make concerted efforts to prepare for “prevention”
- Make timely measures to implement “counter” efforts
- Take rapid response and “rescue” the impacted ships

### 2. Ports

- Typhoon-proof facilities should be included in the port design
- Enhance daily supervision of safety
- Do well in the pre-typhoon and post-typhoon work

## Abstract



## Make Proactive Prevention and Effective Measures against Typhoons

### 1. Ships

#### (I) Make concerted efforts to prepare for “prevention”

- Focusing on prevention
  - Work closely with Weather Forecast Department for Typhoon data
- Combining prevention and counter measures
  - Regular Safety Check, gather and share Ports information timely for ship to berth etc
- Avoiding typhoons at proper time in a flexible way



## Make Proactive Prevention and Effective Measures against Typhoons

### 1. Ships

#### (II) Make timely measures to implement “counter” efforts

- **Two manners of fighting against typhoons:**

- Mooring in ports or anchorage grounds

1. Anchor mooring (mostly use)
2. Buoy Mooring
3. Docking

- Navigating on the sea

1. Navigating away from the typhoon centre





## Make Proactive Prevention and Effective Measures against Typhoons

### 1. Ships

#### (III) Take rapid response and “rescue” the impacted ships

- In 1997, Hainan Marine Rescue Centre was established
- Hainan Province has set up the emergent marine rescue system directed by the Provincial Government, organized, coordinated and commanded by Hainan Marine Rescue Centre, and involving professionals and general public, military and civil groups and all members in the society.



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- In 2011, marine rescue sub-centres in Haikou, Sanya, Yangpu, Qinglan and Basuo were established. Since then, Hainan has its own three-class rescue pattern consisting of Provincial Marine Rescue Centre, sub-centres and city/county emergency command centres.
- The marine rescue network keeps improving constantly and the marine emergency rescue system is being further perfected.



## Make Proactive Prevention and Effective Measures against Typhoons

### 2. Ports

#### (I) Typhoon-proof facilities should be included in the port design

- Therefore, full consideration should be given when making site selection, general planar plan and designing water conservancy structures. Besides, it is imperative to focus on typhoon-proof requirements in large port machines, which should be equipped with devices against gusts or typhoons.



## Make Proactive Prevention and Effective Measures against Typhoons

### 2. Ports

#### (II) Enhance daily supervision of safety

1. Establish organizations for typhoon prevention and implement safety responsibility system while enhancing staffing, responsibility and measures.
2. Establish mechanism of daily inspection of facilities and equipment.

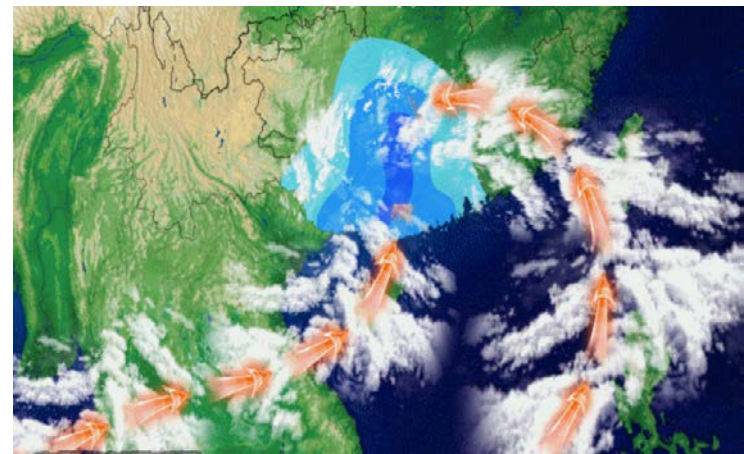




## Make Proactive Prevention and Effective Measures against Typhoons

**3. Conduct typhoon-prevention and rescue drills.**

**4. Keep abreast of latest dynamics and trends of typhoons.**





## Make Proactive Prevention and Effective Measures against Typhoons

### 2. Ports

#### (III) Do well in the pre-typhoon and post-typhoon work

##### ● Port Administration

➢ After receiving typhoon forecast, port administration should organize and deploy typhoon-proof measures. While considering its supervision role, the administration should strengthen supervision over the safety in port region, docks (in particular docks where hazardous goods are operated), passenger terminals and town/township ferries.



## Make Proactive Prevention and Effective Measures against Typhoons

- Correction of problems and weak points in typhoon-proof facilities.
- Keep 24-hours supervision duty into regulation.
- When typhoon attacks, the administration should organize rescue and disaster relief actively so that the losses and damages will be reduced to the lowest level.
- After the typhoon passes, it should sum up the lessons and experience in preventing and fighting against the typhoon on a timely basis while making constant improvement in the typhoon-proof work.



## Make Proactive Prevention and Effective Measures against Typhoons

### Port Enterprises

- Port enterprises, while considering realities, should cooperate with port administration to organize the comprehensive and covering-all typhoon-proof safety inspection in a targeted way.
- Port enterprises should focus on checking, repairing and consolidating major storage yards (particularly those having flammables and explosives and wet and poisonous materials), oil tank region, large machineries, ships and other facilities and equipment to secure the safety of all sections.





## Make Proactive Prevention and Effective Measures against Typhoons

- Port enterprises should establish the register of typhoon-proof inspections to record each and every typhoon-proof inspection.
- It is necessary for the enterprises to make the after-typhoon safety inspection.
- It should mobilize relevant staff to carefully inspect the equipment on the site, restore the damaged structures, repair and replace the moisturized, damaged or electricity-leaking electro-mechanic devices including electric appliances or wires on a timely basis.



## Make Proactive Prevention and Effective Measures against Typhoons

- The captain should deploy relevant staff to inspect the damages on/in the ships, the captain should be more cautious when returning to the harbour.
- It is necessary to sum up tactics against typhoons on port projects. For instance, we should identify why the materials or devices are damaged so as to improve the technical performance in preventing against typhoon attacks and promote the safe development of ports operation.

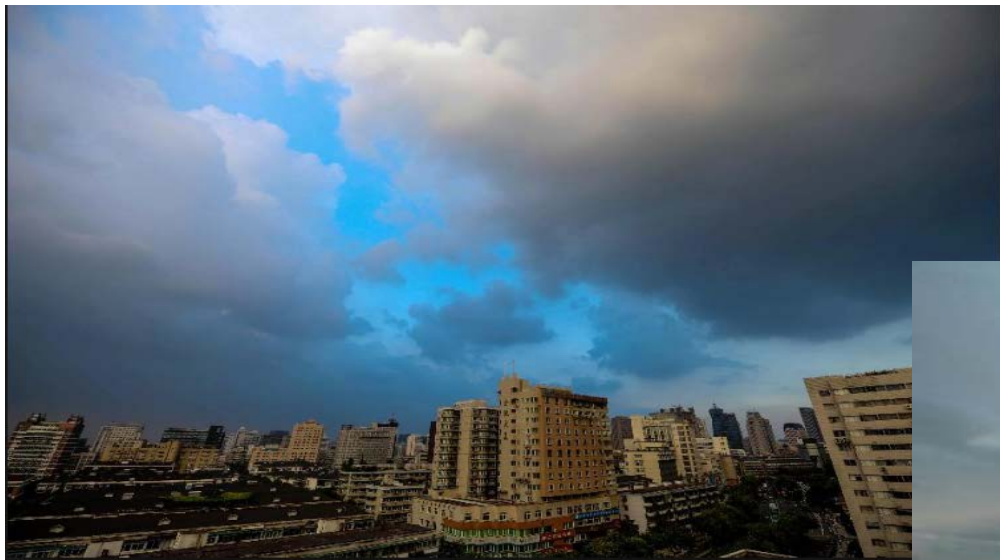


## **Make Proactive Prevention and Effective Measures against Typhoons Summary**

Though typhoons are quite destructive, we can still take initiative to prevent and fight against typhoons and minimize the losses and damages caused by typhoons if we can have access, in a timely and detailed way, to their movement rules, routes, strength, scope of impact and other dynamic information, take targeted and proactive preventive measures, make early and full preparations, implement all necessary safety measures when typhoon attacks, and make timely relief and rescue when emergencies occur.



## Make Proactive Prevention and Effective Measures against Typhoons







**Thanks!**