# = 2003 North Indian Ocean cyclone season =

The 2003 North Indian Ocean cyclone season was mostly focused in the Bay of Bengal , where six of the seven depressions developed . The remaining system was a tropical cyclone that developed in the Arabian Sea in November , which was also the only system that did not affect land . There were three cyclonic storms , which is below the average of 5 @.@ 4 . Only one storm formed before the start of the monsoon season in June , although it was also the most notable . On May 10 , a depression formed in the central Bay of Bengal , and within a few days became a very severe cyclonic storm . After it stalled , it drew moisture from the southwest to produce severe flooding across Sri Lanka , killing 254 people and becoming the worst floods there since 1947 . Damage on the island totaled $ 135 million ( 2003 USD ) . The storm eventually made landfall in Myanmar on May 19 . It is possible that the storm contributed to a deadly heat wave in India due to shifting air currents .

In late July , a monsoon depression moved across much of India , and another monsoon disturbance persisted off the coast of Pakistan . The interaction between the two systems resulted in heavy rainfall across the region , flooding dozens of villages . Monsoonal rainfall killed 285 people between Pakistan and India in the summer of 2003 . In late August , another monsoon depression moved across northeastern India . A depression that struck Andhra Pradesh in India killed 21 people in early October . Later that month , a tropical depression crossed Thailand from the western Pacific Ocean , contributing to ongoing flooding that killed 19 . Once in the Indian Ocean , this system struck southeastern India without causing much damage . The last system of the year was a cyclonic storm that struck southeastern India in December , killing 81 people and causing $ 28 million in damage ( 2003 USD ) .

= = Season summary = =

There were seven depressions throughout the season , of which three attained cyclonic storm status . One of the cyclonic storms formed before the start of the monsoon season , two depressions formed during the monsoon season from June to September , and the remaining systems formed after September . The number of depressions was similar or greater than that of the previous three years . However , the total of 3 cyclonic storms was below the average of 5 @.@ 4 .

In May 2004 , seven of the eight members of the World Meteorological Organization panel on tropical cyclones for the North Indian Ocean met in Colombo , Sri Lanka to review the season . During the meeting , the panel announced the first list of tropical cyclone names to be used in the basin for the following season . The panel noted the increasing frequency of deadly natural disasters in the region , such as the floods that affected Sri Lanka in May 2003 from a cyclone . One of the panel 's goals was increased coordination between the countries in the region . The India Meteorological Department ( IMD ) in New Delhi served as the official Regional Specialized Meteorological Center , although the Joint Typhoon Warning Center also issued warnings for the region in an unofficial capacity . The IMD utilized satellite data from EUMETSAT to track cyclones , as well as radars from Bangladesh , Sri Lanka , and India .

There were several other monsoon disturbances that affected various countries in the region , including Bangladesh , Pakistan , and Oman . On July 27 , during the monsoon season , an area of convection exited from the coast of Pakistan . On the next day , the thunderstorms organized around the center , prompting the Pakistan Meteorological Department to classify the system as a monsoon depression . The IMD operationally classified the system as a depression on July 29 , although it was dropped during the agency 's annual report . The system weakened into a remnant low on July 30 . The system drew moisture from another depression that had moved across India from the Bay of Bengal , bringing three days of heavy rainfall to Karachi , Pakistan . Badin in southeastern Pakistan recorded 292 mm ( 11 @.@ 5 in ) of rainfall in 24 hours . The rainfall extended into northwestern India , and in Gujarat , a station received more than its annual rainfall during the deluge . Flooding from the heavy rainfall destroyed widespread crops and flooded dozens of villages , and ongoing rains persisted throughout the summer , killing 285 people in the two

countries .

== Storms ==

=== Very Severe Cyclonic Storm BOB 01 ( 01B ) ===

The first storm of the season originated from the monsoon trough , developing into a depression on May 10 in the Bay of Bengal . Initially favorable conditions allowed the system to steadily intensify while moving northwestward , reaching peak maximum sustained winds of 140 km / h ( 85 mph ) on May 13 . This made it a very severe cyclonic storm according to the IMD . The storm later drifted northward and later to the east in the central Bay of Bengal , although increased wind shear induced weakening into a deep depression . The system eventually began a steady northeast track , bringing it ashore in western Myanmar on May 19 as a re @-@ intensified cyclonic storm . It dissipated shortly thereafter over land , and was no longer observable on satellite imagery by May 20 .
Early and later in its duration , the storm brought rainfall to the Andaman and Nicobar Islands . Although the storm never passed within 700 km ( 430 mi ) of the island , the cyclone produced torrential rainfall across southwest Sri Lanka after it stalled in the central Bay of Bengal . The storm drew moisture from the southwest that coalesced in the mountainous portion of the island . A station at Ratnapura recorded 366 @.@ 1 millimetres ( 14 @.@ 41 in ) of rainfall in 18 hours on May 17 , including 99 @.@ 8 mm ( 3 @.@ 93 in ) in one hour . This followed a period of regular rainfall in the first 15 days of May across the region . The rains caused flooding and landslides in southwestern Sri Lanka that destroyed 24 @,@ 750 homes and damaged 32 @,@ 426 others , leaving about 800 @,@ 000 people homeless . Overall damage totaled about $ 29 million ( 2003 USD ) , mostly to roads and buildings , and there were 254 deaths . This made it the worst floods on the island since 1947 . The storm also drew moisture away from India , which possibly contributed to a heat wave that killed 1 @,@ 200 people , and dropped heavy rainfall in Myanmar .

=== Deep Depression BOB 02 ===

A low pressure area persisted over the northern Bay of Bengal on July 22 , eventually organizing into a depression on July 25 about 160 km ( 100 mi ) south of Kolkata . Moving northwestward , the system quickly intensified into a deep depression , with peak winds estimated at 55 km / h ( 35 mph ) . Late on July 25 , the system made landfall north of Balasore in Odisha state . It progressed inland across India , weakening to depression status but remaining a distinct system . On July 28 , the depression degenerated into a remnant low over Rajasthan in northwestern India , later merging with a heat low . Rainfall associated with the system mostly occurred in the southwestern periphery , with a peak of 250 mm ( 9 @.@ 8 in ) at Kendrapara ; there was little damage . Rainfall also spread into Bangladesh .

=== Depression BOB 03 ===

On August 27 , a low pressure area concentrated into a depression about 230 km ( 145 mi ) south of Kolkata . The system largely consisted of a circulation without much organized convection . It moved to the west @-@ northwest and failed to intensify , moving ashore near Chandabali , Odisha on August 28 . Once over land , the depression stalled until dissipating on August 29 . Rainfall from the storm peaked at 200 mm ( 7 @.@ 9 in ) at Kantamal in Odisha , and there were no reports of damage . The system was largely connected with the monsoon , resulting in an increase in rainfall over northeastern India .

=== Depression BOB 04 ===

A low pressure area persisted on October 4 in the western Bay of Bengal , off the east coast of

Tamil Nadu . Two days later , the system organized into a depression and moved northward . Early on October 7 , the depression made landfall at Kalingapatnam , Andhra Pradesh . After moving slowly northwestward over land , the system turned to the northeast , degenerating into a remnant low on October 10 over West Bengal . The depression dropped heavy rainfall along its path , peaking at 380 mm ( 15 in ) in Chandabali , Odisha . Kolkata received 267 mm ( 10 @.@ 5 in ) , and rainfall spread as far northeast as Assam . The rains caused widespread flooding across southeastern India , inundating 20 villages and covering 16 @,@ 000 hectares ( 39 @,@ 000 acres ) of rice paddies . A tornado spawned by the depression injured 11 people and damaged several houses in Murshidabad . Across its track , the depression killed 13 people in West Bengal and another eight in Andhra Pradesh .

=== Deep Depression BOB 05 ( 23W ) ===

On October 21 , an area of convection formed in the Gulf of Thailand in the western Pacific Ocean . With low wind shear , the thunderstorms organized around the circulation , prompting the JTWC to initiate advisories on Tropical Depression 23W . While drifting northward , the system failed to organize further . Later , a ridge steered the depression to the west , bringing it ashore Thailand on October 24 near Hua Hin District . The next day , the circulation entered the Bay of Bengal after weakening over land , passing near the Andaman and Nicobar Islands . On October 26 , the IMD began classifying the system as a depression . The convection gradually reorganized as the system turned to the northwest , prompting the JTWC to upgrade it to a minimal tropical storm on October 27 . On the same day , the IMD upgraded it to deep depression status . The system made landfall between Visakhapatnam and Kalingapatnam in Andhra Pradesh on October 28 , and dissipated the next day .
While crossing Thailand , the depression produced heavy rainfall reaching 127 @.@ 7 mm ( 5 @.@ 03 in ) at Hua Hin over a 24 ? hour period . Ongoing monsoonal flooding in the country forced thousands of people to evacuate their houses . About 22 @,@ 000 cattle were killed , and large areas of farmlands were inundated . Officials opened the Kaeng Krajan Dam to prevent it from being destroyed by the floods . Damage from the depression alone was estimated at ? 1 billion baht ( $ 25 million 2003 USD ) . The monsoonal rains in October and November 2003 in the country killed 19 people . In India , the depression dropped locally heavy rainfall , reaching 120 mm ( 4 @.@ 7 in ) in Dummugudem . There was little damage in the country .

=== Severe Cyclonic Storm ARB 06 ( 02A ) ===

The lone system in the Arabian Sea in the season originated from a trough . On November 10 , an area of convection formed off the western coast of India . With little wind shear , the system organized further as it moved west @-@ southwestward due to a ridge to the north . On November 12 , the system developed into a depression and quickly intensified into a deep depression . That day , the JTWC classified the system as Tropical Cyclone 02A , and it intensified into a cyclonic storm on November 13 . The storm was located at an unusually low latitude of 6 ° N. After an eye developed in the center of the convection , the JTWC upgraded the storm to the equivalent of a minimal hurricane , estimating peak winds of 150 km / h ( 90 mph ) on November 14 . By contrast , the IMD estimated peak winds of 100 km / h ( 65 mph ) , making the system a severe cyclonic storm . Subsequently , drier air weakened the storm , causing the convection to decrease . By November 15 , the storm had weakened to depression status while approaching Somalia . That day , the JTWC discontinued advisories while the storm was about 520 km ( 320 mi ) east of the Somalia coastline . On November 16 , the depression degenerated into a remnant low , and subsequently dissipated .

=== Severe Cyclonic Storm BOB 07 ( 03B ) ===

On December 10 , an area of convection with an associated circulation persisted about 740 km ( 460 mi ) west of the northern tip of Sumatra , as part of a trough in the region and enhanced by the

monsoon . A steady decline in the wind shear allowed the thunderstorms to organize , and a depression formed on December 11 . On the next day , the JTWC initiated advisories on Tropical Cyclone 03B . The storm moved generally northwestward , steered by a ridge to the north . The IMD upgraded the system to a deep depression and later cyclonic storm on December 13 , and further to a severe cyclonic storm a day later . The agency estimated peak winds of 100 km / h ( 65 mph ) , noting spiral convection organizing around the beginnings of an eye feature . The storm also developed well @-@ defined outflow due to an approaching trough from the west . At around 14 : 30 UTC on December 15 , the storm made landfall near False Divi Point in southeastern India , along the coast of Andhra Pradesh . After turning to the northeast over land , the system rapidly weakened , degenerating into a remnant low on December 16 .

 Before the storm made landfall , officials evacuated about 20 @,@ 000 people . As the storm moved ashore in India , it produced heavy rainfall that reached 190 mm ( 7 @.@ 5 in ) at Repalle , Andhra Pradesh . Light rains fell in neighboring Tamil Nadu . The rains deluged 61 @,@ 898 @.@ 5 ha ( 152 @,@ 955 acres ) of fields in Andhra Pradesh . The storm damaged or destroyed 9 @,@ 090 houses , and downed several trees and power lines . Local news reports indicated that the storm produced 10 m ( 33 ft ) waves as it moved ashore , which damaged a ship and forced its crew to be rescued by the Indian Coast Guard . In Andhra Pradesh , the storm killed 83 people and resulted in $ 28 million ( 2003 USD ) in damage . After the storm , the government provided ? 50 @,@ 000 rupees ( $ 1 @,@ 111 USD ) to the family of every storm victim .