= 2005 North Indian Ocean cyclone season =

The 2005 North Indian Ocean cyclone season was destructive and deadly to southern India , although most storms were weak . The basin covers the Indian Ocean north of the equator as well as inland areas , sub @-@ divided by the Arabian Sea and the Bay of Bengal . Although the season began early with two systems in January , the bulk of activity was confined from September to December . The official India Meteorological Department tracked 12 depressions in the basin , and the unofficial Joint Typhoon Warning Center (JTWC) monitored two additional storms . Three systems intensified into a cyclonic storm , which have sustained winds of at least 63 km / h (39 mph) , at which point the IMD named them .

The first official storm of the season was Cyclonic Storm Hibaru , which formed southeast of Sri Lanka in January . After nearly five months of inactivity , two depressions formed toward the end of June on opposite sides of India . The depression in the Arabian Sea was one of only two in that body of water during the year , the other of which formed in September and killed 13 people . The other was a depression that formed over land and killed 26 people in Madhya Pradesh , followed by another depression in July that killed one person . A series of deadly storms affected southeastern India beginning in September ; a depression killed six people in Madhya Pradesh , Cyclonic Storm Pyarr killed 80 people , an unclassified tropical storm killed 16 people in nearby Bangladesh , and a deep depression in October killed 100 people in Andhra Pradesh . December was active , with cyclonic storms Baaz and Fanoos hitting southern India , resulting in 11 fatalities , and a deep depression remaining over waters in the middle of the month .

= = Season summary = =

During the season , the India Meteorological Department (IMD) tracked cyclonic disturbances in the region , as part of them being the designated Regional Specialized Meteorological Center , covering the waters north of the Indian Ocean north of the equator from 45 ° E to 100 ° E. The activity was separated between the Bay of Bengal and the Arabian Sea , although there were no cyclonic storms in the latter region . The tropical systems were tracked using satellite imagery and the Dvorak technique , while forecasts were based on cyclone models . There were a total of 12 depressions during the year , three less than normal , although the highest since 1992 . The IMD named four cyclonic storms , a process they initiated in 2004 , which was also below normal . No systems strengthened beyond cyclonic storm status .

The season was the sixth in a row with below normal activity , based on the seasonal accumulated cyclone energy . Storms generally develop when the monsoon trough is located over tropical waters , with a peak from May to June and another peak in November . The monsoon developed 11 distinct low pressure areas by the end of September , including five monsoon depressions , and the monsoon season was more active than usual .

= = Storms = =

= = = Cyclonic Storm Hibaru = = =

An area of convection formed at a low latitude to the southeast of Sri Lanka on January 10 , located within a broad trough and in an area of low wind shear . Over the next few days , the convection consolidated as an elongated circulation became evident . On January 13 , the IMD designated the system as a depression . The system organized further and developed rainbands . A ridge to the north caused the depression to move erratically and remain generally stationary . The IMD upgraded the system to a deep depression on January 14 , the same day that the JTWC classified it as Tropical Cyclone 02B . On the next day , the IMD upgraded it further to Cyclonic Storm Hibaru , estimating winds of 65 km / h (40 mph) , marking an unusual occasion for such a low @-@ latitude storm in January . Drifting southward , the circulation gradually became exposed from the

convection , indicative of the weakening . Hibaru degenerated into a remnant low on January 17 .

= = = Land Depression 01 = = =

Early on June 27 , a low pressure area formed over the extreme northwestern portion of the Bay of Bengal . Soon after it moved ashore near Kolkata , and the system organized into a depression over West Bengal with winds of 45 km / h (30 mph) . For several days the system maintained its intensity while moving northwestward , stalling on July 1 for three days over Madhya Pradesh . It later turned to the northeast and dissipated over Uttar Pradesh on July 6 .

The depression produced widespread rainfall across eastern India . Sagar , Madhya Pradesh recorded 480 mm (19 in) in 24 hours , the highest daily total . The rains helped cut India 's rainfall deficit by enhancing the monsoon . Rains first affected Odisha , where rivers overflowed and inundated adjacent crop fields . As the storm stalled over Madhya Pradesh , it produced widespread flooding that isolated 129 villages , killing 26 people . Over a four @-@ day period , nearly 900 mm (35 in) of rain fell across parts of the Katni district . The floods cut off communications , washed away a bridge , and damaged many roads .

= = = Cyclonic Storm Pyarr = = =

A tropical depression developed in the South China Sea on September 12 and moved westward into central Vietnam on the next day . Continuing through Laos and Thailand , the system emerged into the northern Andaman Sea on September 15 . Tracked continuously as a depression by the Thai Meteorological Department , it was classified as a depression by the IMD on September 17 west of Myanmar . On the next day , the system intensified into a deep depression and later cyclonic storm , whereupon the IMD named it Pyarr . It was the first cyclonic storm in the month in seven years . Attaining peak winds of 65 km / h (40 mph) , the storm took an unusual track to the southwest . On September 19 , Pyarr made landfall just northeast of Kalingapatnam in Andhra Pradesh . It turned westward and weakened over land , deteriorating into a remnant low on September 22 over Madhya Pradesh .

As a depression , the system produced damaging swells along coastal Bangladesh , forcing 12 @,@ 000 people to evacuate . Offshore , an estimated 9 @,@ 000 fishermen in roughly 600 vessels were caught in the storm ; 15 ? 20 of these ships capsized with 85 people collectively aboard . At least 16 were known to have died . Torrential rainfall affected eastern coastal India , with a daily peak of 490 mm (19 in) in Kunavaram . The rains caused rivers to rise , forcing 36 @,@ 000 people to evacuate after 315 villages were affected . The floods killed 10 @,@ 000 cattle and killed four people in Khammam . Pyarr also wrecked 482 @,@ 188 ha (1 @,@ 191 @,@ 510 acres) of crop fields . In Andhra Pradesh , the storm damaged or destroyed 12 @,@ 041 houses , with overall damage estimated at ? 503 million (2005 Indian rupees , $ 11 @.@ 4 million United States dollars) . More than 140 @,@ 000 people were forced to relocate after the Godavari and Krishna rivers burst their banks and caused tremendous flooding . At least 64 people died across Andhra and Odisha Pradeshes .

= = = Deep Depression BOB 04 = = =

A low pressure area formed in the western Bay of Bengal on October 25 . It had a well @-@ defined circulation , helped by low wind shear and good outflow . The IMD classified it as a depression on October 26 , and later that day upgraded it to a deep depression . Moving northwestward , the system moved ashore near Ongole , Andhra Pradesh early on October 28 . The depression rapidly weakened over land , degenerating into a remnant low the next day .

Heavy rainfall affected coastal Andhra Pradesh , with a daily peak of 350 mm (14 in) in Kavali . In Tamil Nadu to the south , Chennai recorded 420 mm (17 in) of rainfall . The storm brought several days of heavy rainfall to southern India , forcing 50 @,@ 000 people to evacuate . Low @-@ lying areas of Chennai were inundated , disrupting travel by road , rail , and air , and causing schools to

close . A car was washed away , killing three people in the city . Two people in Chennai were electrocuted , and the provincial electric board shut off power in heavily flooded areas . The rains flooded 194 @,@ 423 ha (480 @,@ 430 acres) of crop fields and inundated many rail lines . Across Andhra Pradesh , 1 @,@ 045 houses collapsed , and the rains killed at least 100 people .

= = = Cyclonic Storm Baaz = = =

An area of convection formed on November 26 in the eastern Bay of Bengal within an area of moderate wind shear . As the shear decreased , the convection organized about a developing circulation . On November 27 , the JTWC classified the system as Tropical Cyclone 07B , and the next day , the IMD classified it as a depression . That day , the agency quickly upgraded it to Cyclonic Storm Baaz . By that time , the storm was moving steadily westward due to a ridge to the north . On November 29 , the IMD estimated peak 3 minute winds of 85 km / h (50 mph) . Increasing wind shear weakened Baaz on December 1 , in conjunction with the storm turning to the west @-@ northwest . The storm quickly deteriorated , and the IMD downgraded it to a remnant low on December 2 , the same day that the JTWC issued their final advisory . The remnants continued to the west , eventually crossing the Indian coast north of Pondicherry on December 3 .

The precursor to the storm brought heavy rainfall to southern Thailand , reaching 417 mm (16 @.@ 4 in) in Ko Samui . The rains killed 11 people in the country and caused ? 400 million (Thai baht , $ 10 million USD) in damage . The remnants also dropped heavy rainfall in southern India , with a daily peak of 310 mm (12 in) in Tambaram . The rains flooded several villages in Tamil Nadu , killing 11 people .

= = = Cyclonic Storm Fanoos = = =

A low pressure area developed on December 4 in the south Andaman Sea . It consisted of a circulation with increasingly organized convection . The system moved west @-@ southwestward through the Bay of Bengal due to a ridge to the north , organizing into a depression two days later . That day , the JTWC also classified it as Tropical Cyclone 06B . Moderate wind shear allowed the system to strengthen further , and the IMD classified it as Cyclonic Storm Fanoos early on December 7 . Later that day , the agency estimated peak 3 minute winds of 85 km / h (50 mph) . Two days later , the JTWC estimated peak 1 minute winds of 110 km / h (70 mph) as the storm bypassed northern Sri Lanka . Wind shear and proximity to land weakened Fanoos into a deep depression on December 10 , and shortly after it made landfall on eastern Tamil Nadu near Vedaranyam . The IMD downgraded the storm to a remnant low pressure area later that day , although the JTWC tracked the storm across southern India into the Arabian Sea ; the agency stopped following Fanoos on December 12 .

The threat of the storm necessitated fishermen to remain at port , while 25 @,@ 000 people evacuated to shelters . The final landfalling storm of the season , Fanoos brought heavy rainfall to Tamil Nadu , with a daily peak of 350 mm (14 in) in Ramanathapuram . The rains heavily damaged crops across Tamil Nadu , although damage was less than expected . It was the fifth storm to affect southern India in six weeks .

= = = Deep Depression BOB 08 = = =

An area of convection formed on December 14 over the Bay of Bengal with a broad circulation . It was in an area of low wind shear , which allowed for slow development , and it became a depression on December 15 . A ridge to the north steered the system to the northwest and later to the west . On December 17 , the JTWC classified it as Tropical Cyclone 07B , the same day that the IMD upgraded it to a deep depression with peak 3 minute winds of 55 km / h (35 mph) . On the next day , the JTWC estimated peak 1 minute winds of 85 km / h (50 mph) . Increasing wind shear prevented further development as the storm turned to the north , keeping it east of Sri Lanka . An approaching trough turned the weakening system to the northeast on December 21 , and the next

day the IMD downgraded it to a remnant low in the central Bay of Bengal . The outskirts of the system brushed Chennai , with the city receiving 120 mm (4 @.@ 7 in) of rainfall , although there was no reported damage .

= = = Other storms = = =

The JTWC tracked a short @-@ lived depression in early January . The system formed southeast of Sri Lanka on January 7 , days before Hibaru formed . It remained weak as it drifted northward with peak winds of only 55 km / h (35 mph) . The depression dissipated on January 10 . In the middle of June , an area of convection formed along the monsoon offshore the Saurashtra region of western India . On June 21 , a depression developed with winds of 45 km / h (30 mph) . Moving to the west @-@ northwest , it dissipated on June 22 , bringing light rainfall up to 70 mm (2 @.@ 8 in) in Gujarat . In late July , a low pressure area formed in the northwest Bay of Bengal , organizing into a depression on July 29 . The system remained nearly stationary just offshore West Bengal . On July 30 , the depression intensified into a deep depression . Shortly thereafter , the system moved ashore near Balasore , Odisha . It moved west @-@ northwestward over land , dissipating on July 31 . The depression dropped widespread rainfall , peaking at 490 mm (19 in) in Chandabali . The rains swelled rivers and flooded fields , affecting many roadways . One person died after a wall collapsed .

On September 10 , a low pressure area formed in the northwestern Bay of Bengal . Moving to the northwest , it organized into a depression on September 12 , and soon after made landfall near Paradip , Odisha with winds of 45 km / h (30 mph) . It continued through northeastern India , weakening into a remnant low over Uttar Pradesh on September 17 . The depression brought heavy rainfall to eastern India , with a daily peak of 300 mm (12 in) in Nabarangpur . Across Odisha , the rains inundated 75 @,@ 943 ha (187 @,@ 660 acres) of crop fields , and later killed six people after flooding villages in Madhya Pradesh . Another low pressure area formed south of Gujarat on September 13 , developing into a depression the next day . It moved slowly to the northwest at first before turning to the east , never attaining wind speeds higher than 45 km / h (30 mph) . Late on September 16 , the depression struck Gujarat just north of Porbandar and rapidly weakened over land . The system brought rainfall and gusty winds that killed 13 people .

An area of convection formed on October 1 southeast of India . It was located in an area of moderate wind shear . The system moved to the northeast , developing more convection over the circulation . On October 2 , the JTWC classified it as Tropical Cyclone 03B , although the IMD never issued warnings on the system . The JTWC estimated peak 1 minute winds of 65 km / h (40 mph) . Early on October 3 , the storm moved ashore just south of Kolkata , and dissipated soon after . Heavy rains swamped portions of northern Bangladesh causing tremendous flooding that destroyed more than 100 @,@ 000 mud @-@ built homes . Government officials estimated that 1 @.@ 5 million people were rendered homeless . Floods also damaged 200 @,@ 000 hectares (500 @,@ 000 acres) of crops and 1 @,@ 000 km (620 mi) of roads . At least 16 people were killed while waterborne diseases in the aftermath threatened to kill dozens more .

A low pressure area formed in the western Bay of Bengal on November 19 . Moving to the west @-@ northwest , it concentrated into a depression on the next day . On November 22 , it crossed over Sri Lanka and later degenerated into a remnant low over the Gulf of Mannar , never reaching winds beyond 45 km / h (30 mph) . The remnants brought heavy rainfall to Tamil Nadu , with Panruti reporting 540 mm (21 in) of precipitation over 72 hours .

= = Season effects = =

This is a table of all of the storms that have formed during the 2005 North Indian Ocean cyclone season . It includes their names , duration , peak strength , areas affected , damage , and death totals . Deaths in parentheses are additional and indirect (an example of an indirect death would be a traffic accident) , but were still related to that storm . Damage and deaths include totals while the storm was extratropical , a wave , or a low , and all of the damage figures are in 2005 USD .