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## Costliest U.S. tropical cyclones tables updated

NOAA's National Centers for Environmental Information (NCEI) in consultation with the National Hurricane Center (NHC) has updated the listing of costliest tropical cyclones to strike the United States mainland. This listing was previously found in the NOAA memorandum The Deadliest, Costliest and Most Intense U.S. Tropical Cyclones, linked at https://www.nhc.noaa.gov/pdf/nws-nhc-6.pdf

These new tables listed below replace Tables $3 a$ and $3 b$ in the above document. The first table (3a), not adjusted for inflation, lists 36 tropical cyclones from 1900 to 2017 that caused at least 1 billion dollars in damage on the U.S. mainland, and another five striking U.S. territories or Hawaii. The second table (3b) accounts for inflation to 2017 dollars.

For all United States hurricanes, Katrina (2005) is the costliest storm on record. Hurricane Harvey (2017) ranks second, Hurricane Maria (2017) ranks third, Hurricane Sandy (2012) ranks fourth and Hurricane Irma (2017) ranks fifth. Hurricane Maria is the costliest hurricane on record to strike Puerto Rico and the U.S Virgin Islands.

The NCEI data set provides more loss information than previous damage figures used by NHC, including agriculture, individual payouts, and disaster money from the federal government to the respective states. In performing these disaster cost assessments, NCEI examined statistics from a wide variety of sources. Using the latest scientific methodology, it determined the estimated total costs of these events - that is, the costs in terms of dollars that would not have been incurred had the event not taken place. Insured and uninsured losses are included in damage estimates. Sources include the National Weather Service, the Federal Emergency Management Agency, U.S. Department of Agriculture, National Interagency Fire Center, U.S. Army Corps of Engineers, individual state emergency management agencies, state and regional climate centers, media reports, and insurance industry estimates.

Additional information on the methodology is at https://www.ncdc.noaa.gov/billions/
Contact: NHC Public Affairs - nhc.public.affairs@noaa.gov

Table 3a. Mainland United States tropical cyclones causing at least 1 billion dollars of damage, 19002017, (not adjusted for inflation).

| RANK | TROPICAL CYCLONE | YEAR | CATEGORY | DAMAGE (U.S.) |
| :---: | :--- | ---: | ---: | ---: |
| 1 | KATRINA (SE FL, LA, MS) | 2005 | 3 | $\$ 125,000,000,000$ |
| 1 | HARVEY (TX, LA) | 2017 | 4 | $\$ 125,000,000,000$ |
| 4 | SANDY (Mid-Atlantic \& NE US) | 2012 | 1 | $65,000,000,000$ |
| 5 | IRMA (FL) | 2017 | 4 | $50,000,000,000$ |
| 6 | IKE (TX, LA) | 2008 | 2 | $30,000,000,000$ |
| 7 | ANDREW (SE FL/LA) | 1992 | 5 | $27,000,000,000$ |
| 8 | IVAN (AL/NW FL) | 2004 | 3 | $20,500,000,000$ |
| 9 | WILMA (S FL) | 2005 | 3 | $19,000,000,000$ |
| 10 | RITA (SW LA, N TX) | 2005 | 3 | $18,500,000,000$ |
| 11 | CHARLEY (SW FL) | 2004 | 4 | $16,000,000,000$ |
| 12 | IRENE (Mid-Atlantic \& NE US) | 2011 | 1 | $13,500,000,000$ |
| 13 | MATTHEW (SE US) | 2016 | 1 | $10,000,000,000$ |
| 14 | FRANCES (FL) | 2004 | 2 | $9,800,000,000$ |
| 15 | ALLISON (N TX) | 2001 | TS | $8,500,000,000$ |
| 16 | JEANNE (FL) | 2004 | 3 | $7,500,000,000$ |
| 17 | HUGO (SC) | 1989 | 4 | $7,000,000,000$ |
| 18 | FLOYD (Mid-Atlantic \& NE U.S.) | 1999 | 2 | $6,500,000,000$ |
| 19 | GUSTAV (LA) | 2008 | 2 | $6,000,000,000$ |
| 20 | ISABEL (Mid-Atlantic) | 2003 | 2 | $5,500,000,000$ |
| 21 | FRAN (NC) | 1996 | 3 | $5,000,000,000$ |
| 22 | OPAL (NW FL) | 1995 | 3 | $4,700,000,000$ |
| 25 | ALICIA (N TX) | 1983 | 3 | $3,000,000,000$ |
| 26 | ISAAC (LA) | 2012 | 1 | $2,800,000,000$ |
| 27 | GEORGES (FL Keys, MS, AL) | 1998 | 2 | $2,500,000,000$ |
| 27 | DENNIS (NW FL) | 2005 | 3 | $2,500,000,000$ |
| 29 | AGNES (FL/NE U.S.) | 1972 | 1 | $2,100,000,000$ |
| 32 | FREDERIC (AL/MS) | 1979 | 3 | $1,700,000,000$ |
| 33 | BOB (NC, NE U.S) | 1991 | 2 | $1,500,000,000$ |
| 33 | JUAN (LA) | 1985 | 1 | $1,500,000,000$ |
| 35 | CAMILLE (MS/SE LA/VA) | 1969 | 5 | $1,420,700,000$ |
| 36 | BETSY (SE FL/SE LA) | 1965 | 3 | $1,420,500,000$ |
| 37 | ELENA (MS/AL/NW FL) | 1985 | 3 | $1,300,000,000$ |
| 37 | DOLLY (S TX) | 2008 | 1 | $1,300,000,000$ |
| 39 | LILI (SC LA) | 2002 | 1 | $1,100,000,000$ |
| 40 | ALBERTO (AL, GA) | 1994 | TS | $1,030,000,000$ |
| 41 | BONNIE (Mid-Atlantic) | $2,000,000,000$ |  |  |
|  |  |  |  |  |


| ADDENDUM |  |  |  |  |  | 2017 | 4 | $90,000,000,000$ |
| :---: | :--- | :--- | :--- | ---: | :---: | :---: | :---: | :---: |
| 3 | MARIA (PR, USVI) | 1998 | 3 | $3,500,000,000$ |  |  |  |  |
| 23 | GEORGES (USVI,PR) | 1992 | 4 | $3,100,000,000$ |  |  |  |  |
| 24 | INIKI (Kauai, HI) | 1995 | 2 | $2,100,000,000$ |  |  |  |  |
| 29 | MARIL YN (USVI, PR) | 1989 | 4 | $2,000,000,000$ |  |  |  |  |

Table 3b. Costliest mainland United States tropical cyclones, 1900-2017, after accounting for inflation to 2017 dollars.

| RANK | TROPICAL CYCLONE | YEAR | CATEGORY | DAMAGE (U.S.) |
| :---: | :---: | :---: | :---: | :---: |
| 1 | KATRINA (SE FL, LA, MS) | 2005 | 3 | \$160,000,000,000 |
| 2 | HARVEY (TX, LA) | 2017 | 4 | \$125,000,000,000 |
| 4 | SANDY (Mid-Atlantic \& NE US) | 2012 | 1 | 70,200,000,000 |
| 5 | IRMA (FL) | 2017 | 4 | 50,000,000,000 |
| 6 | ANDREW (SE FL/LA) | 1992 | 5 | 47,790,000,000 |
| 7 | IKE (TX, LA) | 2008 | 2 | 34,800,000,000 |
| 8 | IVAN (AL/NW FL) | 2004 | 3 | 27,060,000,000 |
| 9 | WILMA (S FL) | 2005 | 3 | 24,320,000,000 |
| 10 | RITA (SW LA, N TX) | 2005 | 3 | 23,680,000,000 |
| 11 | CHARLEY (SW FL) | 2004 | 4 | 21,120,000,000 |
| 12 | IRENE (Mid-Atlantic \& NE US) | 2011 | 1 | 14,985,000,000 |
| 13 | HUGO (SC) | 1989 | 4 | 14,070,000,000 |
| 14 | FRANCES (FL) | 2004 | 2 | 12,936,000,000 |
| 15 | AGNES (FL/NE U.S.) | 1972 | 1 | 12,516,000,000 |
| 16 | ALLISON (N TX) | 2001 | TS | 11,815,000,000 |
| 17 | BETSY (SE FL/SE LA) | 1965 | 3 | 11,152,000,000 |
| 18 | MATTHEW (SE US) | 2016 | 1 | 10,300,000,000 |
| 19 | JEANNE (FL) | 2004 | 3 | 9,900,000,000 |
| 20 | CAMILLE (MS/SE LA/VA) | 1969 | 5 | 9,776,000,000 |
| 21 | FLOYD (Mid-Atlantic \& NE U.S.) | 1999 | 2 | 9,620,000,000 |
| 22 | FRAN (NC) | 1996 | 3 | 7,900,000,000 |
| 23 | DIANE (NC) | 1955 | 1 | 7,630,000,000 |
| 24 | OPAL (NW FL) | 1995 | 3 | 7,614,000,000 |
| 25 | ALICIA (N TX) | 1983 | 3 | 7,470,000,000 |
| 26 | ISABEL (Mid-Atlantic) | 2003 | 2 | 7,370,000,000 |
| 27 | GUSTAV (LA) | 2008 | 2 | 6,960,000,000 |
| 28 | CELIA (TX) | 1970 | 3 | 6,026,000,000 |
| 29 | FREDERIC (AL/MS) | 1979 | 3 | 5,712,000,000 |
| 32 | LONG ISLAND EXPRESS (NE US) | 1938 | 3 | 5,279,000,000 |
| 33 | NC/VA 1944 (Mid-Atlantic) | 1944 | 3 | 4,927,000,000 |
| 34 | CAROL (NE US) | 1954 | 3 | 4,198,000,000 |
| 36 | GEORGES (FL Keys, MS, AL) | 1998 | 2 | 3,775,000,000 |
| 38 | DONNA (FL, Eastern US) | 1960 | 4 | 3,235,000,000 |
| 39 | DENNIS (NW FL) | 2005 | 3 | 3,200,000,000 |
| 40 | ISAAC (LA) | 2012 | 1 | 3,024,000,000 |
| 41 | ELENA (MS/AL/NW FL) | 1985 | 3 | 3,003,000,000 |
| ADDENDUM |  |  |  |  |
| 3 | MARIA (PR, USVI) | 2017 | 4 | 90,000,000,000 |
| 30 | INIKI (Kauai, HI) | 1992 | 4 | 5,487,000,000 |
| 31 | GEORGES (USVI,PR) | 1998 | 3 | 5,285,000,000 |
| 35 | HUGO (USVI, PR) | 1989 | 4 | 4,020,000,000 |
| 37 | MARILYN (USVI, PR) | 1995 | 2 | 3,402,000,000 |

