



Why Is Heavy Rain on the Rise in the UAE?

Extended periods of heavy rainfall have become more commonplace in the UAE over the last 20 years, according to a new report. Undertaken jointly by the National Centre of Meteorology (NCM) and the Khalifa University of Science and Technology, the report found that climate change was most likely to blame for an increase of mesoscale convective systems (MCSs).

This type of weather phenomenon normally affects precipitation in springtime and has been linked to the warming of the Earth's atmosphere, which makes it more effective at retaining moisture. Scientists fear that this could increase the risk of flooding, but also potentially benefit domestic agriculture, food production and water security in the UAE.

After the flood

The revealing study analysed the frequency of 95 MSCs between 2000 and 2020, using satellite imagery and observational data. By cross-referencing the statistics available to them, they determined that these extreme weather episodes were happening for longer. This, they believe, is due to moisture from the Arabian Sea, Red Sea and Arabian Gulf being trapped over the Emirates.

This is concerning because it increases the likelihood of flooding incidents. Not only can these pose a threat to human life, private property and public infrastructure, but they can also contaminate water supplies. In turn, this complicates [the different stages of the wastewater treatment process](#) and makes it more difficult to protect the country's fragile reserves of drinking water.

Every storm cloud has a silver lining

Even though the phenomenon adversely affects the UAE and its citizens in very tangible ways, it could also bring some benefits, too. That's because on average, many parts of the country enjoy less than 100mm of rainfall in an entire year. This makes it extremely challenging to grow crops or bolster drinking water supplies, which is why some 85% of the UAE's food is imported.

However, increased rainfall could help to alleviate that problem. By factoring rainwater retention into urban development strategies, and planning agricultural schedules around such weather events, the country could turn a drawback into a



benefit. Of course, similar preparation must be put in place to ensure that damage caused by MCS-related flooding is kept to a minimum.

Cloud seeding successful

In a separate research investigation, NCM scientists discovered that the country's cloud seeding drive had produced favourable results. The programme was launched in 2003, so by comparing precipitation volumes from the two decades prior with the years that followed, they were able to ascertain that seeded regions enjoyed 23% more rainfall.

“The work provides new insights for assessing long-term seeding impacts and has significant implications for policy and decision-making related to cloud seeding research and operational programmes in arid regions,” [explained the research team](#). This rainfall differed from that produced by MCSs by the time of year it occurred during, ensuring that the positive outcomes were not false positives.