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Disruptions and the Evolution to Disruption in DIII-D[1] A.W. HYATT, P.L. TAYLOR, A.G. KELLMAN, General Atomics — A database comprised of the temporal evolution of several thousand DIII-D discharges from start-of-flattop to end-of-flattop or disruption was initially constructed in 1999[2] and extended thereafter. All discharges include at least 100 kW of auxiliary neutral beam heating. We report on several analysis results from this database. We use a "runs test of randomness" to show that plasma disruptions are not caused by random events. This analysis is done on the entire database and on several subsets of discharges with similar parameters. We show that disruptivity, the likelihood that a discharge in the database will disrupt, is statistically insensitive to β_N but is sensitive to low density and to q_{95} below 5. We also show that disruptivity tends to zero for plasmas which survive more than about 4 seconds after 90% of the maximum achieved β_N is reached.

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[2]A.W. Hyatt, et al., Bull. Am. Phys. Soc. **44**, 77 (1999).

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☐ Prefer Oral Session
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Special instructions: Poster 14, Stability, MHD, Current Drive, Advanced Tokamak

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