

DamDestroyer—Modeling Surface Flow Using LiDAR

LiDAR Digital Elevation Models (DEMs) offer an unprecedented view of the terrain. A plane with a laser array coats the landscape with millions of laser shots, with each one returning a point of elevation.

TRACKING WATER FLOW

With each pixel representing a 1x1 meter—or less!—square on the ground, features instantly become recognizable: every little hill, river, drainage ditch, and roadway stands out in ways not seen in traditional satellite imagery. By using LiDAR digital elevation models to track where water is flowing, scientists can study more detailed questions examining river erosion, flood events, or agricultural runoff.

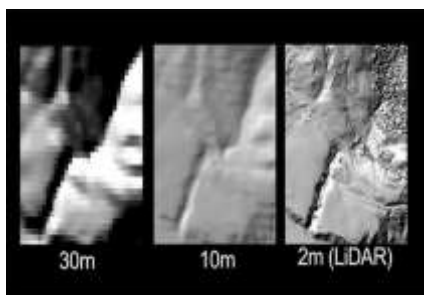
Modeling hydrology using LiDAR runs into issues where roadways cross rivers. LiDAR only maps the surface, so that elevated bridges stick out like artificial dams on the landscape. The tools calculating where rivers flow cannot tell where culverts are specifically located.

This can dramatically reroute calculated stream pathways sideways, in straight lines, or even uphill, resulting in inaccurate stream networks.

Old hydrology tools are no use, as they are made for data with much coarser resolutions.

DamDestroyer intelligently removes these artificial dams from LiDAR DEM's, enabling flow modeling on the scales from single agricultural fields up to entire watersheds.

DamDestroyer is an ArcGIS toolbox using spatial analyst designed for the average user.



IN FOUR STEPS

The tools identify areas artificially dammed by roadways, find paths to breach the dams, burn these paths into the DEM, and calculates a new flow network. LiDAR hydrology made by DamDestroyer has been used in studies looking at agricultural runoff contaminating Lake Champlain, and river erosion from extreme flooding events in face of climate change.

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SIMPLY TRANSFORMATIONAL

Clearion's technology helps solve complex infrastructure maintenance and construction workflows. From supervision to design, planning to crew, Clearion delivers across multiple user platforms including web, desktop, tablets, and other handheld devices.

Clearion is a leader in end-to-end technology solutions designs to help companies radically transform their work environments, strengthen communication among work groups, and service their customers more effectively. Clearion works with leading utility, telecom, gas, and transportation companies across the globe to solve complex operational challenges—and provide highly innovative solutions to aid in the design, construction, and maintenance of utility assets and large-scale infrastructure. Clearion is a Gold Tier member of the Esri Partner Network.

Most importantly, we would love to work with you.