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River system map

Mapping all the rivers, creeks and streams in the world is a daunting task, especially in places like the Arctic, where it is hard to obtain accurate topographic data. Scientists have now created a new map of global rivers based on a massive automated computer algorithm that can accurately predict where rivers flow — a tool that could help project future flooding as Earth's climate change. Many different factors affect the flow of water to the ground, including man-made structures such as terrain seams, watershed sizes and canals. Scientists have previously used topographic data collected by spacecraft such as NASA's shuttle radar topography mission to generate detailed, 3-D models of the Earth's surface, but these maps sometimes distort the locality's slope due to observation errors. In the new study, Yamazaki et al used an updated version of a popular topographic data set to develop multi-error-removed reform-terrain digital altitude models (MERIT DEM), which was published in 2017 by members of the same team, a computer algorithm that predicts where rivers flow with very little human guidance. The new, publicly available hydrographic data set, called Merit Hydro, shows rivers at high resolution at around 90-x 90-meter reed pixels, including the Arctic region, and is less prone to tree canopy or errors caused by incorrect height than existing global hydrographic maps, the authors write. Compared with existing maps, synthetic hydrographic maps where rivers such as China's Pearl River and the OB River in Russia, made remarkably accurate predictions, the team reported. To further refine the map, the team also included global Landsat data, as well as data from crowdsourced mapping database OpenStreetMap, which researchers discovered using tags such as waterways, river, stream, brook and wadi. Based on this combined data set, the algorithm provided integrated information on small currents not captured by current satellite images. OpenStreetMap data also allowed researchers to generate maps of man-made stream networks like irrigation canals, which could be flood prone. A remaining challenge to more accurate river mapping is in arid areas like the Danakil Desert in Ethiopia, where streams are often intermittent and fleeting, the researchers said. The team writes that it hopes other scientists will build on and improve the free, open-source qualifying hydro program, noting that it can be used in forecasting flood risk and analyzing ecosystem biodiversity and carbon emissions. (Water Resources Research, 2019) - Emily Underwood, Freelance Writer Text © 2019. Writers. Except for CC BY-NC-ND 3.0 where otherwise mentioned, the images are subject to copyright. No reuse without express permission from copyright is prohibited. This series of river maps is carried out in a style inspired by urban transit maps such as the 1930s for the London Underground pioneered by Harry Beck. Straight lines, 45 degree angles, simple geometry. The result is more of an abstract network representation than you will find on most maps, and it doesn't even mean to be taken seriously - I do not really recommend transit through these rivers, as many parts of them are not navigable. But they do, nevertheless, connect us. If you want to know a little more about how the maps were made, including many many semi-arbitrary decisions that go into them, click here. It took quite a few years to finish, but I'm pleased to offer a free PDF covering North America's 43 major river systems. Interested in putting a river system on your wall? I have a lot of print-on-demand poster options for you. Most from Atlas have every system here, plus many special maps that are only available as posters. Click on each thumbnail to take a look, or click the link to move to print on the demand service. You'll see a few different styles, just based on how the graphics evolved over time because I kept the map produced/modified. When I offer most of these maps as free PDFs, they take time and effort; if you get some value from them, you are welcome to donate to support My continued work. PDF version citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the Ninth Census with the contributions of several eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov tem/05019329/=>. Page 2 citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. Science based on the results of the Ninth Census with many eminent men and contributions from many of the United States Statistical Atlas <www.loc.gov>Of the government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1. &Walker, F.A. (1874) Of the U.S. Statistical Atlas based on the results of the Ninth Census with the contributions of several eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. [The map] obtained from the Library of Congress, . United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov tem/05019329/=>. Page 3 citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1. &Walker, F.A. (1874) Of the U.S. Statistical Atlas based on the results of the Ninth Census with the contributions of several eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. [The map] obtained from the Library of Congress, . United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov><www.loc.gov><www.loc.gov>United States Census Office. 9th Census, 1. &Walker, F.A. (1874) Of the U.S. Statistical Atlas based on the results of the Ninth Census with the contributions of several eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov tem/05019329/=>. Page 4 citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1. &Walker, F.A. (1874) Of the U.S. Statistical Atlas based on the results of the Ninth Census with the contributions of several eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov tem/05019329/=>. Page 5 citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1. &Walker, F.A. (1874) Of the U.S. Statistical Atlas based on the results of the Ninth Census with the contributions of several eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov tem/05019329/=>. Page 6 citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov tem/05019329/=>. Page 7 citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov tem/05019329/=>. Page 8 citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1. &Walker, F.A. (1874) Of the U.S. Statistical Atlas based on the results of the Ninth Census with the contributions of several eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. [The map] obtained from the Library of Congress, . United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. Received from the Library of Congress, <www.loc.gov tem/05019329/=>. Page 9 citations are automatically generated from bibliographic data as a feature, and may not be complete or accurate. United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. . United States Census Office. 9th Census, 1. &Walker, F.A. (1874) Of the U.S. Statistical Atlas based on the results of the Ninth Census with the contributions of several eminent men of science and several departments of government. [New York J. Bien, Lyth, 1874] map. [The map] obtained from the Library of Congress, . United States Census Office. 9th Census, 1870, and Francis Amasa Walker. The Statistical Atlas of the United States based on the results of the ninth census with the contributions of many eminent men of science and several

