Elegant Mapping

Robert Simmon/Sigma Space

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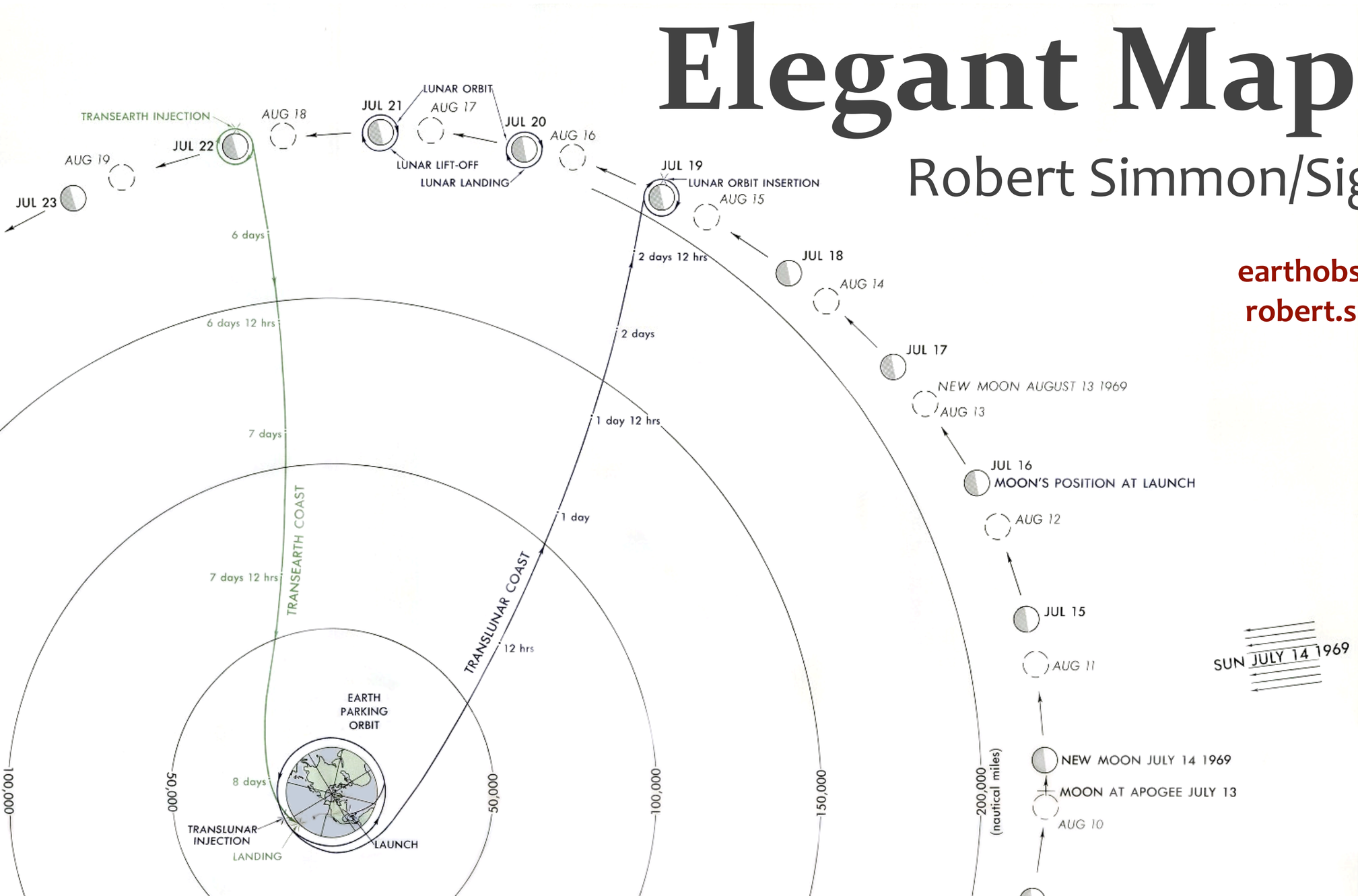
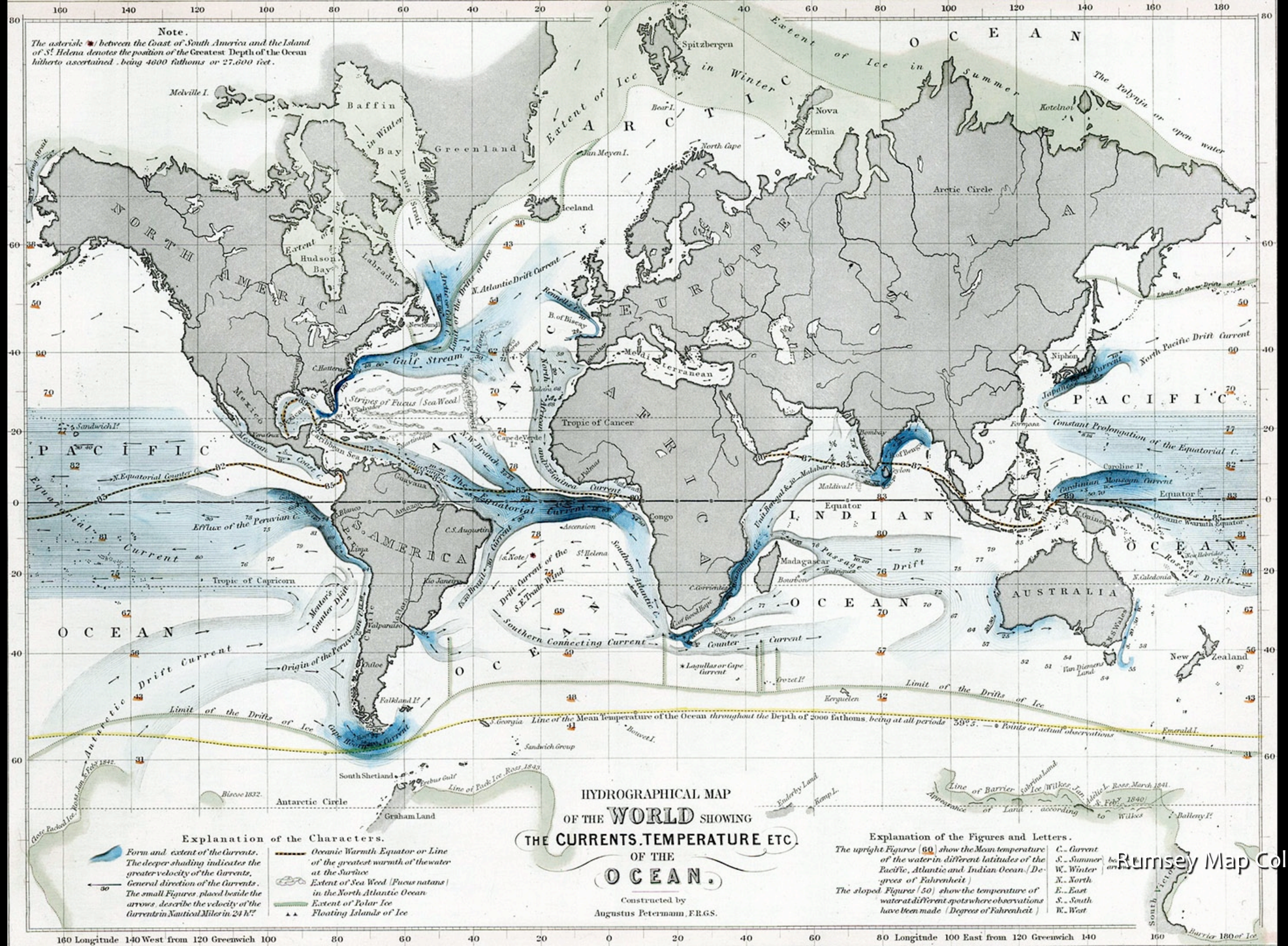


@rsimmon

Why Study Cartography?

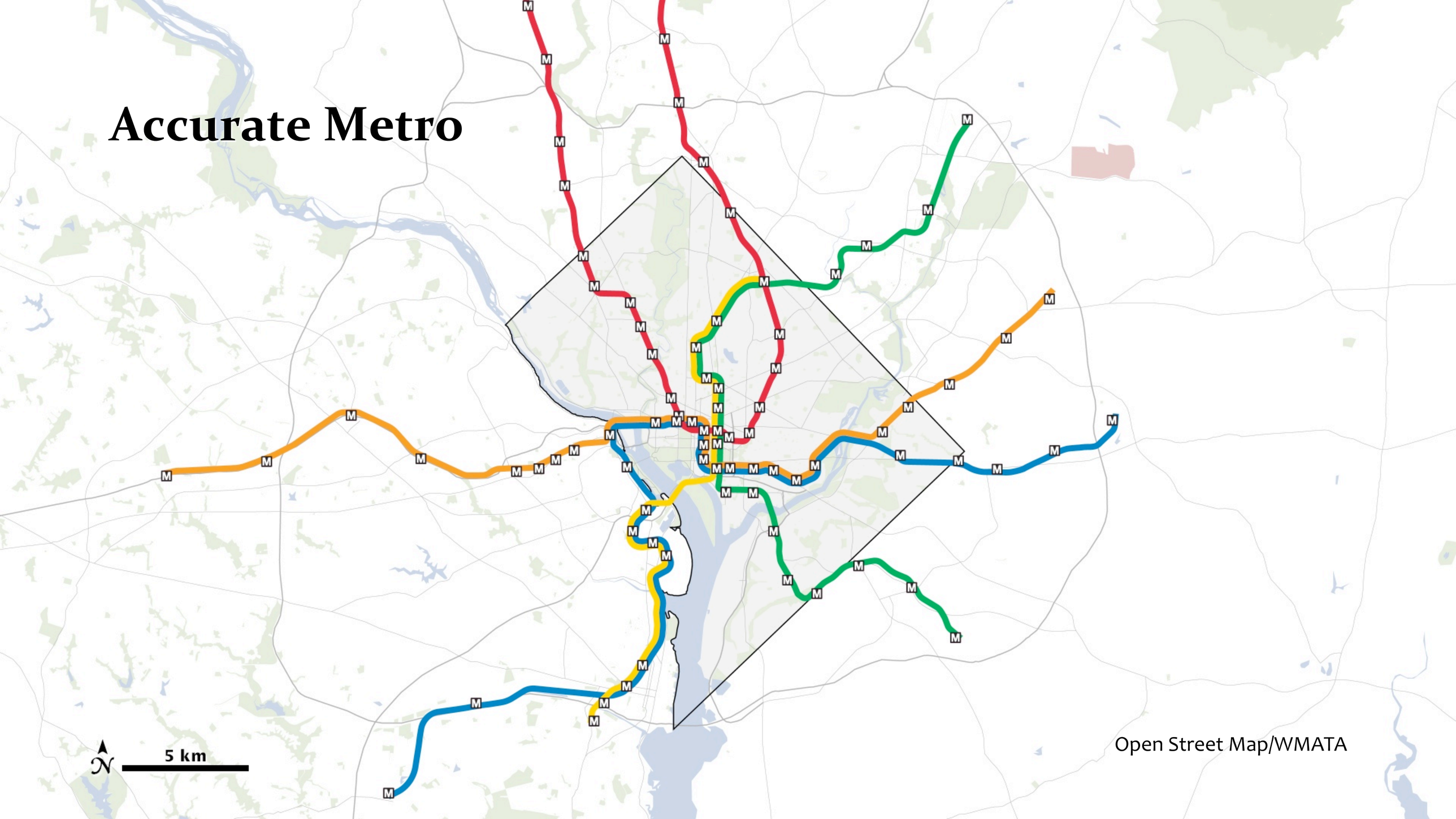


Rumsey Map Collection

Abstraction

Washington, DC
Satellite
N
5 km
NASA/USGS/Landsat

Accurate Metro

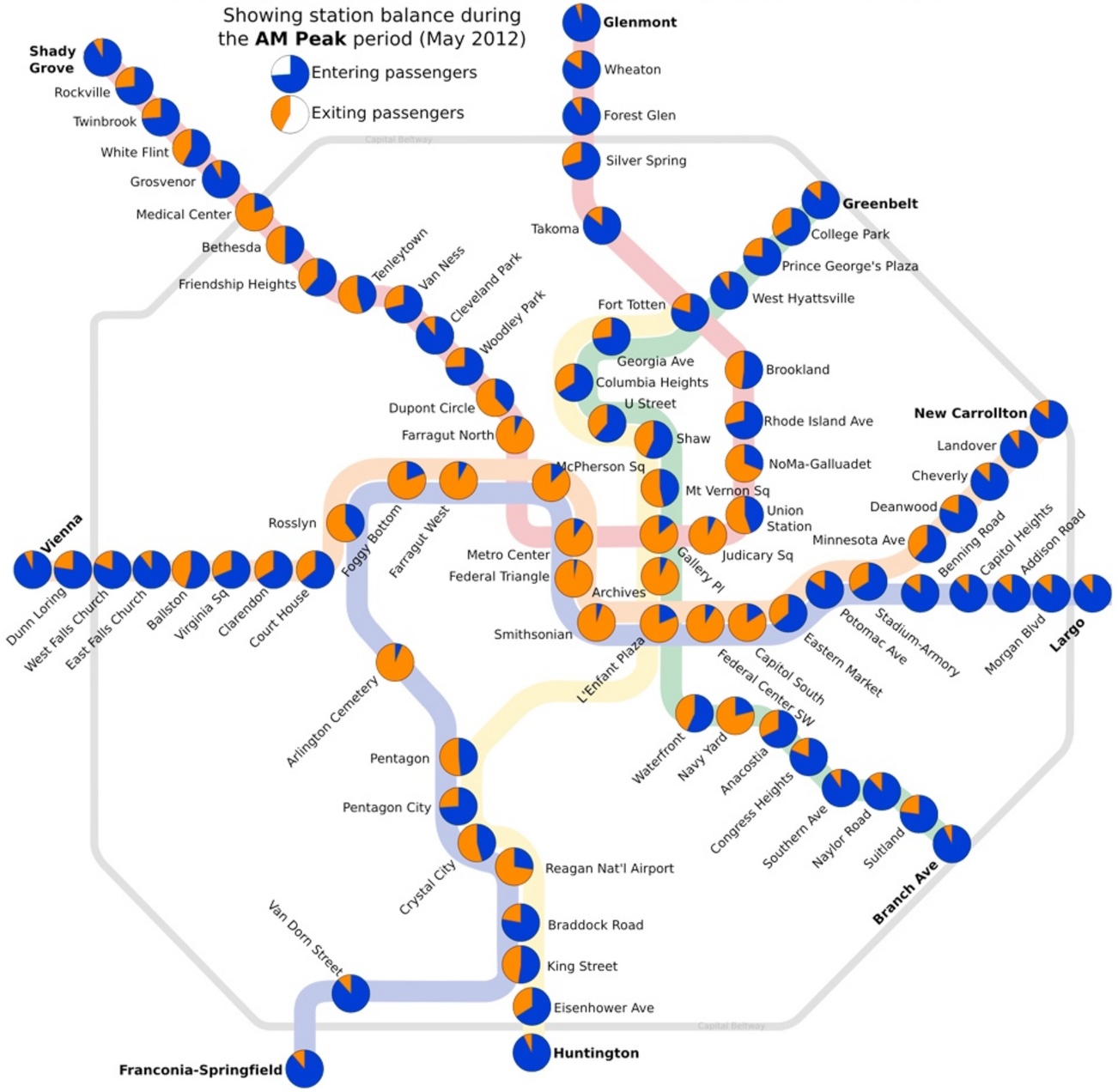


Open Street Map/WMATA

RD
Shady Grove
Rockville
Twinbrook
White Flint
Grosvenor-Strathmore
Medical Center
Bethesda
Friendship Heights
Tenleytown-AU
Van Ness-UDC
Cleveland Park
Woodley Park
Zoo/Adams Morgan
Dupont Circle
Farragut North
Glenmont
Wheaton
Forest Glen
Silver Spring
Takoma
Georgia Ave-Petworth
Columbia Heights
U Street
African-Amer Civil War Mem'l/Cardozo
Shaw-Howard U
Mt Vernon Sq
7th-Convention Center
Gallery Place
Chinatown
Brookland-CUA
Rhode Island Ave
Brentwood
NoMa-Gallaudet U
New York Ave
Union Station
Judiciary Sq
Fort Totten
YL
GR
Greenbelt
College Park-U of Md
Prince George's Plaza
West Hyattsville
SV
Rosslyn
Foggy Bottom-GWU
Farragut West
McPherson Sq
Metro Center
Federal Triangle
Smithsonian
Archives
Navy Memorial-Penn Quarter
National Mall
L'Enfant Plaza
OR
Vienna
Dunn Loring
West Falls Church
East Falls Church
Ballston-MU
Virginia Sq-GMU
Clarendon
Court House
Arlington Cemetery
Pentagon
Pentagon City
Crystal City
Van Dorn Street
Alexandria
Fairfax County
Franconia-Springfield
BL
Ronald Reagan Washington National Airport
Braddock Road
King St-Old Town
Eisenhower Ave
Huntington
Waterfront
Navy Yard-Ballpark
Anacostia River
Anacostia
Congress Heights
Southern Ave
Naylor Road
Suitland
Branch Ave
Potomac Ave
Eastern Market
Capitol South
Federal Center SW
Stadium-Armory
New Carrollton
Landover
Cheverly
Deanwood
Minnesota Ave
Benning Road
Capitol Heights
Addison Road
Morgan Boulevard
Largo Town Center
Metrorail Operating Times
Mon-Thu
5am-midnight
Fri
5am-3am
Sat
7am-3am
Sun
7am-midnight
Times are approximate: check station kiosks or online for exact times.
N

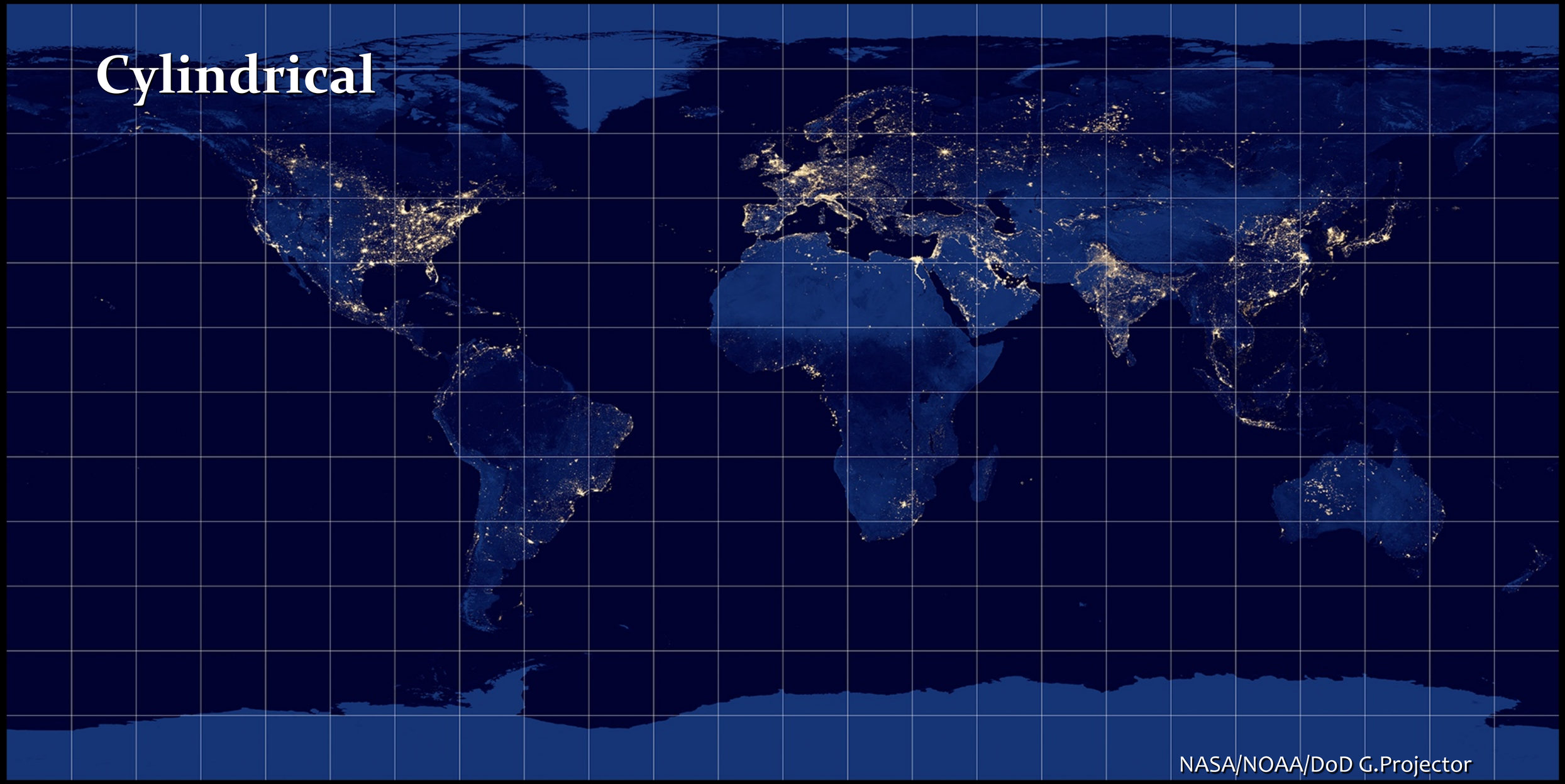
WMATA

Metro Station Balance: AM Peak



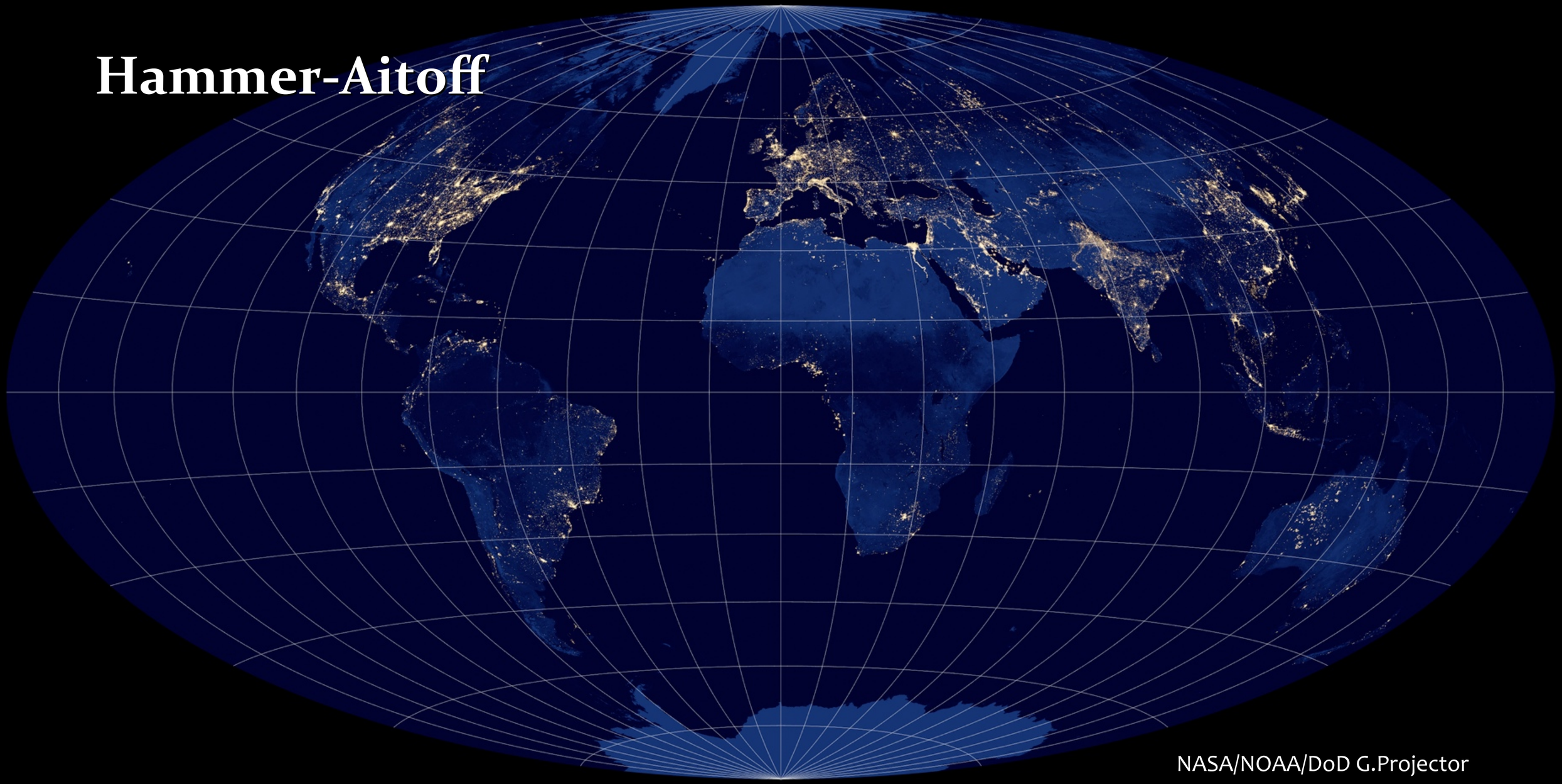
Map Projections

Cylindrical



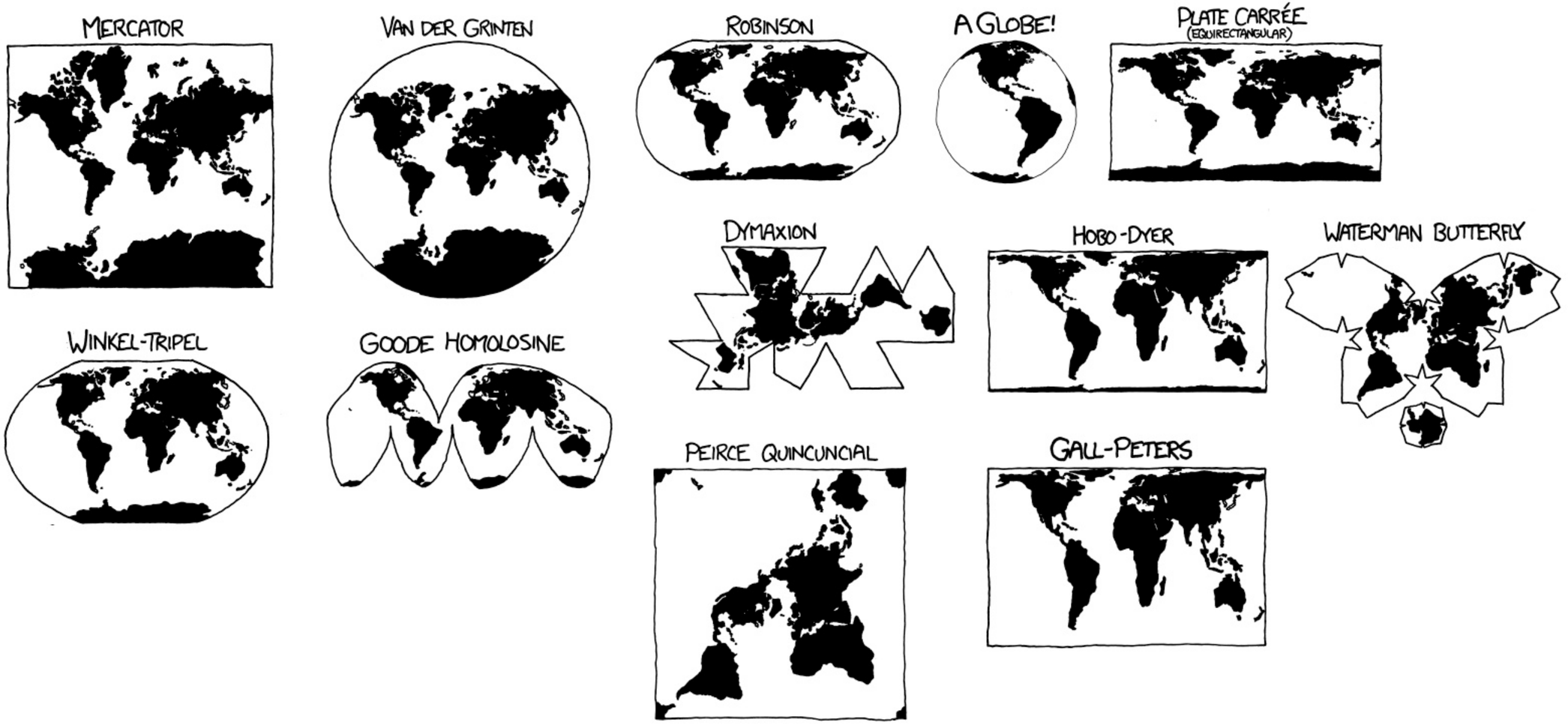
NASA/NOAA/DoD G.Projector

Hammer-Aitoff



NASA/NOAA/DoD G.Projector

Map Projections According to XKCD



Randall Munroe http://xkcd.com/977/

Note: Abbreviations at right are for federal lands shown on this map. In many places, exact trail locations have not yet been determined. Portions of the trails indicated on this map may not be accessible for public use. Please check with individual trail clubs and managing offices for the latest available trail locations.
National Park System
MEM Memorial
NB National Battlefield
NBP National Battlefield Park
NHP National Historical Park
NHS National Historic Site
NL National Lakeshore
NM National Monument
N MEM National Memorial
NMP National Military Park
NP National Park
N PRES National Preserve
NRA National Recreation Area
NRR National Recreational River
N RES National Reserve
NS National Seashore
NSR National Scenic Riverway
PKWY Parkway
National Forest System
NF National Forest
NG National Grassland
Only national park, forest areas, and wildlife refuges that relate to the National Trails System are shown.
Fish and Wildlife Service
NWR National Wildlife Refuge
Bureau of Land Management
PACIFIC NORTHWEST NATIONAL SCENIC TRAIL
OREGON NATIONAL HISTORIC TRAIL
PACIFIC CREST NATIONAL SCENIC TRAIL
CALIFORNIA NATIONAL HISTORIC TRAIL
PONY EXPRESS NATIONAL HISTORIC TRAIL
OLD SPANISH NATIONAL HISTORIC TRAIL
JUAN BAUTISTA DE ANZA NATIONAL HISTORIC TRAIL
ARIZONA NATIONAL SCENIC TRAIL
CONTINENTAL DIVIDE NATIONAL SCENIC TRAIL
NEZ PERCE (NEE-ME-POO) NATIONAL HISTORIC TRAIL
LEWIS AND CLARK NATIONAL HISTORIC TRAIL
The four trails shown here as separate lines actually follow the same route in much of Nebraska and Wyoming.
MORMON PIONEER NATIONAL HISTORIC TRAIL
SANTA FE NATIONAL HISTORIC TRAIL
EL CAMINO REAL DE TIERRA ADENTRO NATIONAL HISTORIC TRAIL
EL CAMINO REAL DE LOS TEJAS NATIONAL HISTORIC TRAIL
IDITAROD NATIONAL HISTORIC TRAIL
NORTH COUNTRY NATIONAL SCENIC TRAIL
ICE AGE NATIONAL SCENIC TRAIL
TRAIL OF TEARS NATIONAL HISTORIC TRAIL
NATCHEZ TRACE NATIONAL SCENIC TRAIL
FLORIDA NATIONAL SCENIC TRAIL
SELMA TO MONTGOMERY NATIONAL HISTORIC TRAIL
NEW ENGLAND NATIONAL SCENIC TRAIL
WASHINGTON-ROCHAMBEAU REVOLUTIONARY ROUTE NATIONAL HISTORIC TRAIL
STAR-SPANGLED BANNER NATIONAL HISTORIC TRAIL
POTOMAC HERITAGE NATIONAL SCENIC TRAIL
APPALACHIAN NATIONAL SCENIC TRAIL
OVERMOUNTAIN VICTORY NATIONAL HISTORIC TRAIL
CAPTAIN JOHN SMITH CHESAPEAKE NATIONAL HISTORIC TRAIL
Chesapeake Bay area National Wildlife Refuges
1 Blackwater
2 Eastern Neck
3 Eastern Shore Of Virginia
4 Featherstone
5 Fisherman Island
6 James River
7 Martin
8 Mason Neck
9 Nansemond
10 Occoquan Bay
11 Plum Tree Island
12 Presquille
13 Rappahannock River Valley
14 Susquehanna
National Park sites
15 Colonial NHP
16 Fort McHenry NM
17 George Washington Birthplace NM
18 Piscataway Park
19 Prince William Forest Park
20 Richmond NBP
See inset map below
Alaska
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
ARCTIC OCEAN
BEAUFORT SEA
BERING SEA
UNITED STATES
MEXICO
CANADA
NPS

Visual Hierarchy
Information Hierarchy

“Overview first, zoom and filter, then details-on-demand.”

Ben Shneiderman, 1996
“The Eyes Have It: A Task by Data Type Taxonomy for Information Visualizations”

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PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
ARCTIC OCEAN
BEAUFORT SEA
BERING SEA
UNITED STATES
MEXICO
CANADA
NPS

OREGON
IDAHO
NEVADA
UTAH
WYOMING
NATIONAL HISTORIC TRAIL
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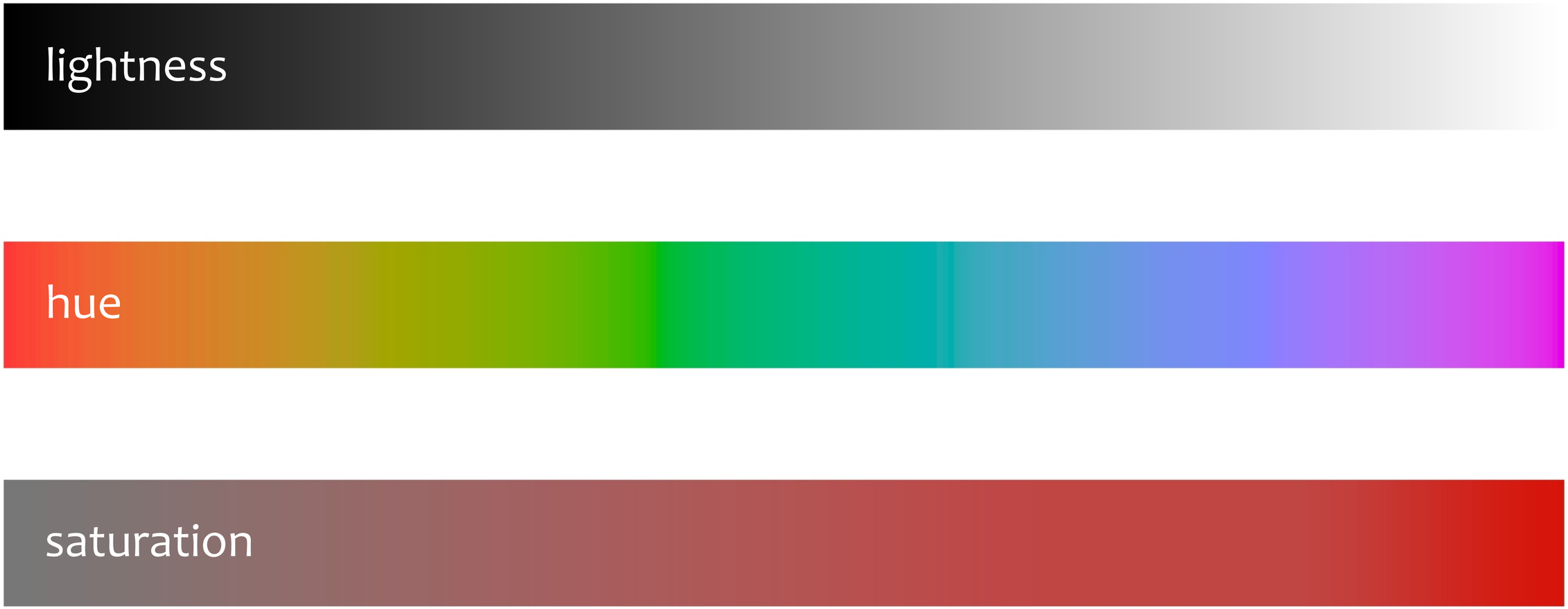
Whitman NF
Salmon NF
Big Hole NB
Beaverhead NF
BOZEMAN
Gallatin NF
BILLINGS
Custer NF
Yellowstone NP
Deer Flat NWR
BOISE
Snake
Sawtooth NF
Targhee NF
Shoshone NF
Teton NF
Caribou NF
Hagerman Fossil Beds NM
POCATELLO
Grays Lake NWR
Bridger NF
Humboldt NF
Sawtooth NF
City of Rocks N RES
Curlew NG
Bear Lake NWR
Cache NF
Cokeville Meadows NWR
Seedskadee NWR
CASPER
Fort Laramie NHS
Pyramid Lake
Great Salt Lake
OGDEN
SALT LAKE CITY
Wasatch NF
Medicine Bow NF
Ruby Lake NWR
Fish Springs NWR
Unita NF
Routt NF
Roosevelt NF
Rocky Mountain NP
BOULDER
Walker Lake
Toiyabe NF
Green
Arapaho
15
80
84
86
90

Color

grayscale

rainbow

how computers calculate color



how we perceive color

Palette Comparison

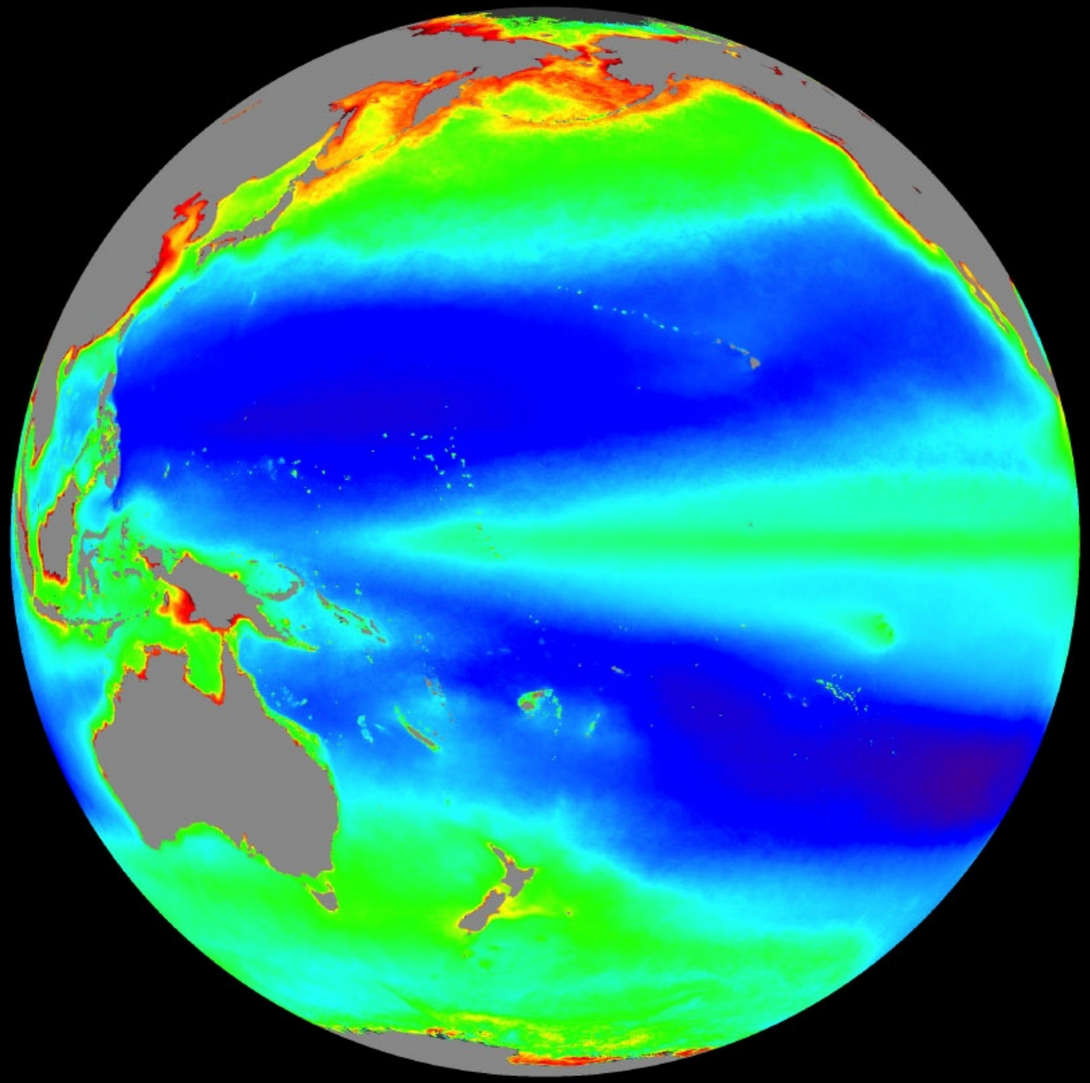
rainbow palette

perceptual sequential palette

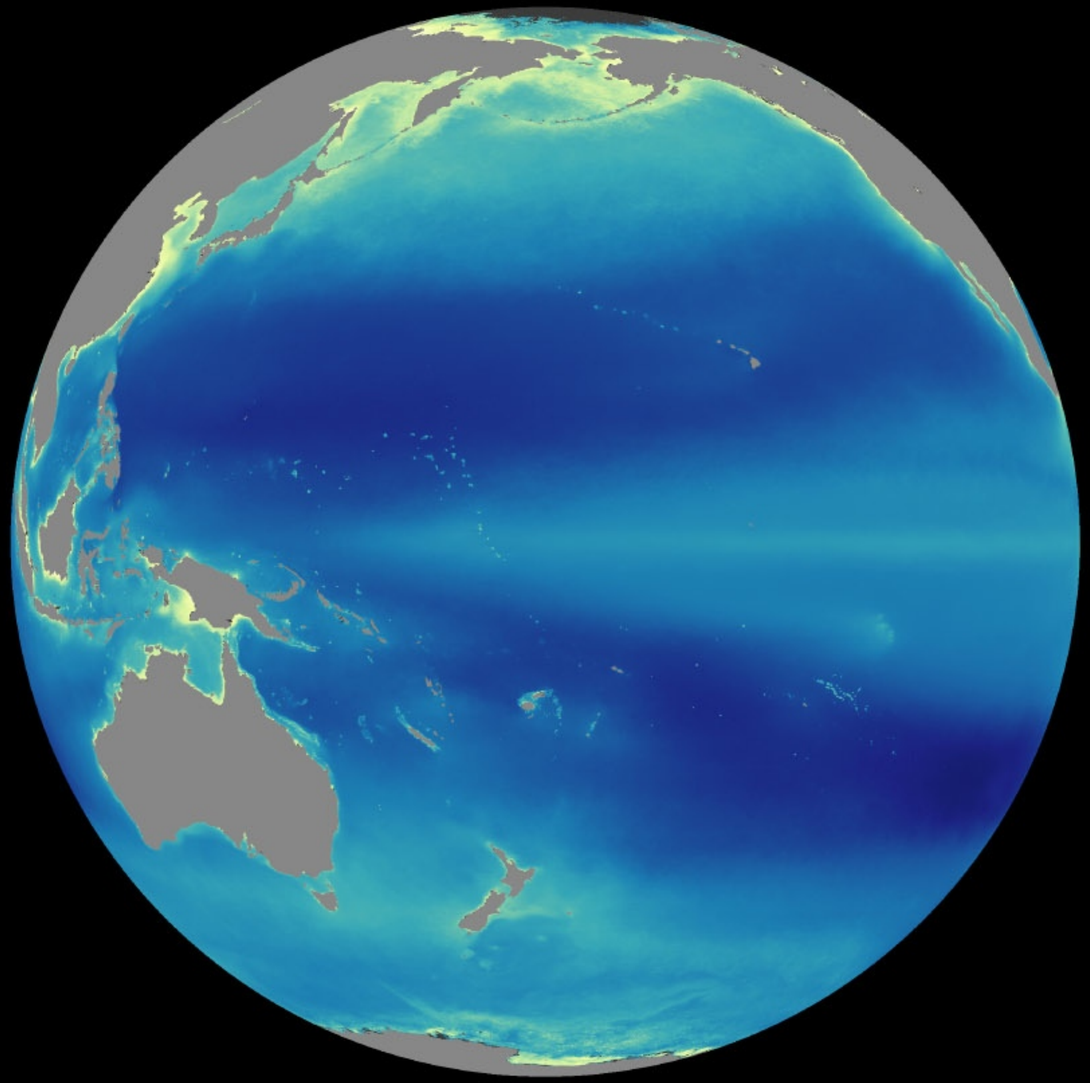
divergent palette

“a kind of spiral in color space that cycles through a variety of hues while continuously increasing in lightness”

Colin Ware



nonlinear, arbitrary



perceptual, intuitive

“Those who cannot remember the past are condemned to repeat it.”

Clarify by selecting relevant details

Choose appropriate graphic types

Build a visual hierarchy to guide the viewer

Use color wisely

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@rsimmon

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