## Putting the Research Catchments on a Map: An Overview of Research Sites that have Shaped Knowledge in Trans-Disciplinary Research

Stephen Sebestyen<sup>1</sup>, Theresa Blume<sup>2</sup>, Jonathan Duncan<sup>3</sup>, and James Shanley<sup>4</sup>

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## Abstract

Worldwide, catchment studies have profoundly influenced science, policy, management, education, and public perception of natural resources. Despite the legacy, some catchment studies have been decommissioned, while others face uncertain futures. In an environment of change, we need them more than ever. During the AGU Centennial, we aim to promote the catchment studies and highlight how long-term and place-based research is vibrant. To that extent, we provide an overview of the submissions to our session and some of those sites that are not present by mapping all the studies that we can identify on this poster. We intend this map, and the entire session, to stimulate discussion about the state of catchment sciences and the sites that make the science possible.

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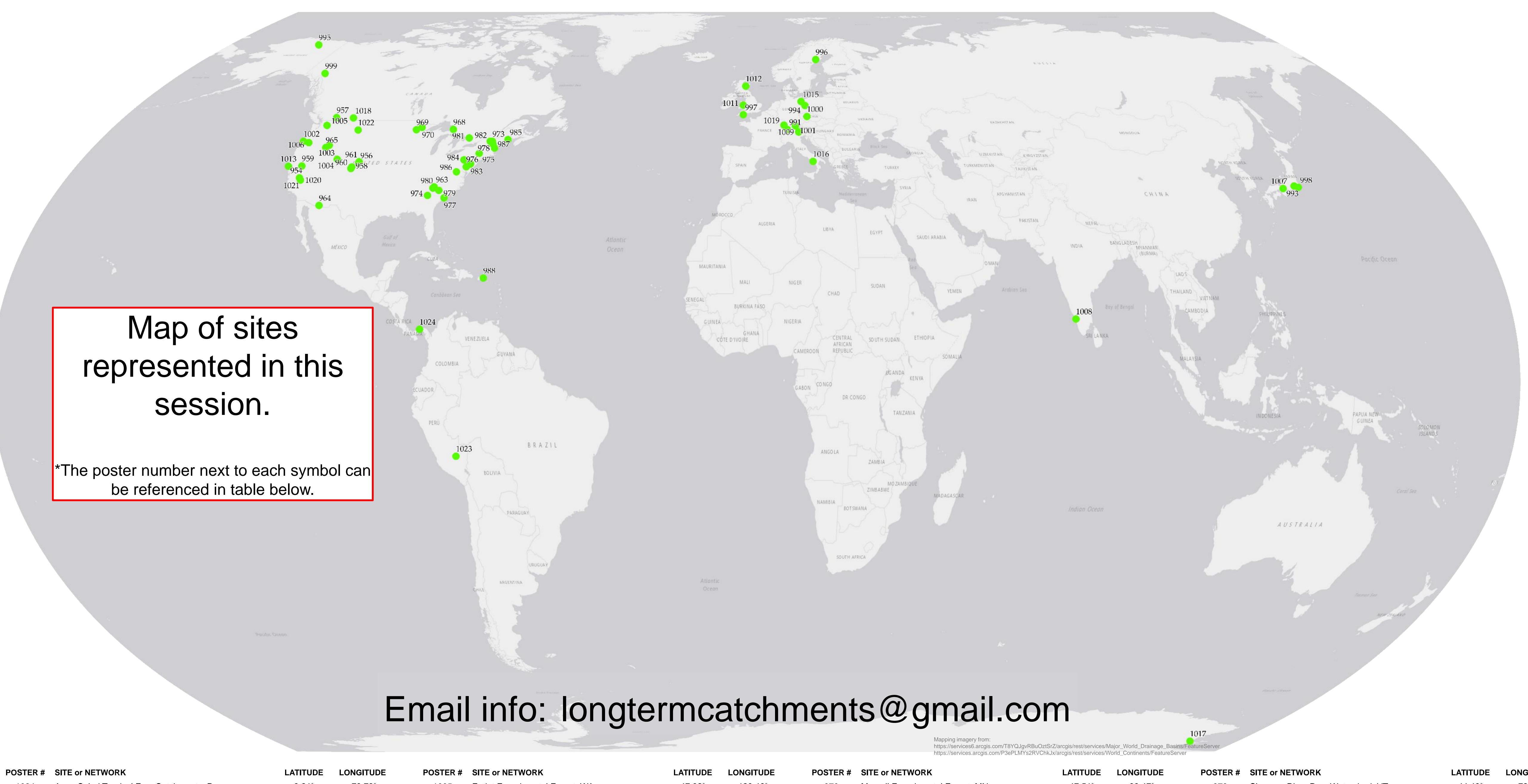
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## PUTTING THE RESEARCH CATCHMENTS ON A MAP: AN OVERVIEW OF RESEARCH SITES THAT HAVE SHAPED KNOWLEDGE IN TRANS-DISCIPLINARY RESEARCH

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SHEORNEIWORK	LAIIIUDE	LONGITUDE	POSTER #	SHEORNEIWORK	LATITUDE	LONGITUDE	POSIER	# SITE OF NETWORK	LATITUDE	LONGITUDE	POSTER 7	F SHE OF NETWORK	LATITUDE	LONGITUDE
Agua Salud Tropical Exp. Catchments, Panama	9.21°	-79.73°	1005	Entiat Experimental Forest, WA	47.92°	-120.46°	970	Marcell Experimental Forest, MN	47.51°	-93.47°	973	Sleepers River Res. Watershed, VT	44.49°	-72.16°
Alptal catchments, Switzerland	47.04°	8.73°	998	Fukuroyamasawa Exp. Watershed, Japan	35.20° 140.10°		955	Montana Mesonet	N/A: multiple s	√A: multiple sites		Southern Sierra CZO, CA	37.06°	-119.18°
Alsea Watershed Study, OR	44.50°	-123.90°	1000	GEOMON Network	49.89°	14.52°	982	Mt. Mansfield, VT	44.51°	-72.78°	1019	South-Western Germany	47.99°	7.84°
Arctic LTER (Toolik)	68.66°	-149.59°	1012	Girnock & Bruntland catchment studies	57.04°	-3.12°	956	Niwot Ridge, CO	40.06°	-105.62°	1022	Tenderfoot Creek Exp. Forest, MT	46.92°	-110.87°
ARS LTAR, midwest	N/A: multiple sites		1006	H.J. Andrews Experimental Forest, OR	44.23° -122.21°		993	Oborasawa Exp. Watershed, Japan	35.47°	139.20°	990	TERENO Network, Germany	N/A: multiple s	sites
Baltimore LTER, MD	39.27°	-76.65°	987	Hubbard Brook Experimental Forest, NH	43.94°	-71.75°	1017	Onyx River, McMurdo Dry Valleys	-77.50°	162.22°	1015	TERENO-Lake Hinnensee/Fuerstensee	53.33°	13.19°
Bear Brook Watershed, ME	44.87°	-68.10°	1016	iAQUEDUCT project, IT	40.36°	15.18°	974	Panola Mt. Res. Watershed, GA	33.63°	-84.17°	1001	TERENO-preAlpine Observatory	47.83°	11.06°
Birmingham Institute of Forest Res.	N/A		1008	Indian Himalayan Region	11.03°	76.02°	1011	Plynlimon Res. Catchments	52.48°	-3.72°	981	The Dorset Catchments, ON	45.22°	-78.93°
Biscuit Brook, NY	41.99° -74.51°		992	Japan LTER Network	N/A: multiple sites		1004	Red Butte Creek/Wasatch, UT	40.77°	-111.82°	958	Watershed Function SFA, East River, CO	38.92°	-106.94°
Boulder Creek, CO	40.01°	-105.46°	954	Kings River, CA	37.06°	-119.20°	965	Reynolds Creek, ID	43.21°	-116.75°	1020	Tokopah & Emerald Lake, CA	36.62°	-118.64°
Calhoun CZO, SC	34.61°	-81.69°	1007	Kiryu Exp. Watershed	34.97°	136.00°	1009	Rio Vauz & Ressi, Northern Italy	46.49°	11.85°	968	Turkey Lakes Watershed, ON, Canada	47.05°	-84.42°
Canadian Southern Rockies Observatory	49.58°	-114.53°	996	Krycklan	64.14°	19.46°	960	Roaring Fork Watershed, CO	39.22°	-106.91°	957	Upper Penticton Creek, BC, Canada	49.65°	-119.39°
Caspar Creek Exp. Watersheds, CA	39.36°	-123.74°	978	Lamprey River Observatory, NH	43.10°	-70.90°	959	Sagehen Creek, CA	39.43°	-120.24°	964	Walnut Gulch, Santa Rita, AZ	31.71°	-110.91°
Catchment Science Coop. USA & Canada	N/A: multiple sites		984	Leading Ridge Exp. Watersheds, PA	40.67°	-77.93°	977	Santee Experimental Forest, SC	33.17°	-79.77°	963	Western Carolina, NC	35.30°	-83.21°
Coweeta Hydrologic Laboratory, GA	35.06°	-83.43°	961	Loch Vale, CO	40.30°	-105.65°	986	Shenandoah Watershed Study, VA	38.25°	-78.75°	983	White Clay Creek CZO, DE	39.86°	-75.78°
Deep Learning	N/A		988	Luquillo CZO & LTER, PR	18.32°	-65.82°	969	Shingobee Headwaters, MN	46.98°	-94.68°	999	Wolf Creek Res. Basin, YT, Canda	60.30°	-135.10°
Demnitzer Mill Creek, Germany	52.38°	14.25°	1023	Madre de Dios River, Peru	-13.06°	-71.55°	997	Slapton Catchments, UK	50.30°	-3.65°	1014	Zhurucay Observatory WITHDRAWN		
Dry Creek Exp. Watershed, ID	43.69°	-116.18°												
	Agua Salud Tropical Exp. Catchments, Panama Alptal catchments, Switzerland Alsea Watershed Study, OR Arctic LTER (Toolik) ARS LTAR, midwest Baltimore LTER, MD Bear Brook Watershed, ME Birmingham Institute of Forest Res. Biscuit Brook, NY Boulder Creek, CO Calhoun CZO, SC Canadian Southern Rockies Observatory Caspar Creek Exp. Watersheds, CA Catchment Science Coop. USA & Canada Coweeta Hydrologic Laboratory, GA Deep Learning Demnitzer Mill Creek, Germany	Agua Salud Tropical Exp. Catchments, Panama  Alptal catchments, Switzerland  Alsea Watershed Study, OR  Arctic LTER (Toolik)  ARS LTAR, midwest  Baltimore LTER, MD  Bear Brook Watershed, ME  Birmingham Institute of Forest Res.  Biscuit Brook, NY  Boulder Creek, CO  Calhoun CZO, SC  Canadian Southern Rockies Observatory  Caspar Creek Exp. Watersheds, CA  Catchment Science Coop. USA & Canada  Coweeta Hydrologic Laboratory, GA  Deep Learning  N/A  A4.50°  A44.50°  A44.87°  A44.8	Agua Salud Tropical Exp. Catchments, Panama  Alptal catchments, Switzerland  Alsea Watershed Study, OR  Arctic LTER (Toolik)  ARS LTAR, midwest  Baltimore LTER, MD  Birmingham Institute of Forest Res.  Biscuit Brook, NY  Boulder Creek, CO  Calhoun CZO, SC  Canadian Southern Rockies Observatory  Caspar Creek Exp. Watersheds, CA  Catchment Science Coop. USA & Canada  Coweeta Hydrologic Laboratory, GA  Deep Learning  Demnitzer Mill Creek, Germany  A47.04°  8.73°  A47.04°  8.73°  A44.50°  -123.90°  A44.50°  -149.59°  -76.65°  A44.87°  -68.10°  N/A  41.99°  -74.51°  A9.58°  -114.53°  -114.53°  -123.74°  N/A: multiple sites  Coweeta Hydrologic Laboratory, GA  35.06°  -83.43°  N/A  Deep Learning  Demnitzer Mill Creek, Germany  52.38°  14.25°	Agua Salud Tropical Exp. Catchments, Panama       9.21°       -79.73°       1005         Alptal catchments, Switzerland       47.04°       8.73°       998         Alsea Watershed Study, OR       44.50°       -123.90°       1000         Arctic LTER (Toolik)       68.66°       -149.59°       1012         ARS LTAR, midwest       N/A: multiple sites       1006         Baltimore LTER, MD       39.27°       -76.65°       987         Bear Brook Watershed, ME       44.87°       -68.10°       1016         Birmingham Institute of Forest Res.       N/A       1008         Biscuit Brook, NY       41.99°       -74.51°       992         Boulder Creek, CO       40.01°       -105.46°       954         Calhoun CZO, SC       34.61°       -81.69°       1007         Canadian Southern Rockies Observatory       49.58°       -114.53°       996         Caspar Creek Exp. Watersheds, CA       39.36°       -123.74°       978         Catchment Science Coop. USA & Canada       N/A: multiple sites       984         Coweeta Hydrologic Laboratory, GA       35.06°       -83.43°       961         Deep Learning       N/A       988         Demnitzer Mill Creek, Germany       52.38°       14.25°	Agua Salud Tropical Exp. Catchments, Panama  9.21° -79.73° 1005 Entiat Experimental Forest, WA  Alptal catchments, Switzerland  47.04° 8.73° 998 Fukuroyamasawa Exp. Watershed, Japan  Alsea Watershed Study, OR 44.50° -123.90° 1000 GEOMON Network  Arctic LTER (Toolik) 68.66° -149.59° 1012 Girnock & Bruntland catchment studies  ARS LTAR, midwest N/A: multiple sites 1006 H.J. Andrews Experimental Forest, OR  Baltimore LTER, MD 39.27° -76.65° 987 Hubbard Brook Experimental Forest, NH  Bear Brook Watershed, ME 44.87° -68.10° 1016 iAQUEDUCT project, IT  Birmingham Institute of Forest Res. N/A 1008 Indian Himalayan Region  Biscuit Brook, NY 41.99° -74.51° 992 Japan LTER Network  Boulder Creek, CO 40.01° -105.46° 954 Kings River, CA  Calhoun CZO, SC 34.61° -81.69° 1007 Kiryu Exp. Watershed  Canadian Southern Rockies Observatory 49.58° -114.53° 996 Krycklan  Caspar Creek Exp. Watersheds, CA 39.36° -123.74° 978 Lamprey River Observatory, NH  Catchment Science Coop. USA & Canada N/A: multiple sites 984 Leading Ridge Exp. Watersheds, PA  Coweeta Hydrologic Laboratory, GA 35.06° -83.43° 961 Loch Vale, CO  Deep Learning N/A 988 Luquillo CZO & LTER, PR  Demnitzer Mill Creek, Germany 52.38° 14.25° 1023 Madre de Dios River, Peru	Agua Salud Tropical Exp. Catchments, Panama         9.21° -79.73°         1005         Entiat Experimental Forest, WA         47.92° Alptal catchments, Switzerland         48.82° Alptal catchments, Switzerland         48.82° Alptal catchments, Switzerland         49.89° Alptal catchments alptal catchments alptal catchment studies         57.04° Alptal Switzerland         49.89° Alptal catchments alptal catchment studies         57.04° Alptal Switzerland         44.23° Alptal Switzer	Agua Salud Tropical Exp. Catchments, Panama         9.21°         -79.73°         1005         Entiat Experimental Forest, WA         47.92°         -120.46°           Alptal catchments, Switzerland         47.04°         8.73°         998         Fukuroyamasawa Exp. Watershed, Japan         35.20°         140.10°           Alsea Watershed Study, OR         44.50°         -123.90°         1000         GEOMON Network         49.89°         14.52°           Arctic LTER (Toolik)         68.66°         -149.59°         1012         Girnock & Bruntland catchment studies         57.04°         -3.12°           ARS LTAR, midwest         N/A: multiple sites         1006         H.J. Andrews Experimental Forest, OR         44.23°         -122.21°           Baltimore LTER, MD         39.27°         -76.65°         987         Hubbard Brook Experimental Forest, NH         43.94°         -71.75°           Bear Brook Watershed, ME         44.87°         -68.10°         1016         iAQUEDUCT project, IT         40.36°         15.18°           Biscuit Brook, NY         41.99°         -74.51°         992         Japan LTER Network         N/A: multiple sites           Boulder Creek, CO         40.01°         -105.46°         954         Kings River, CA         37.06°         -119.20°           Calhoun CZO, SC	Agua Salud Tropical Exp. Catchments, Panama         9.21¹         -79.73¹         1005         Entiat Experimental Forest, WA         47.92¹         -120.46¹         970           Alptal catchments, Switzerland         47.04¹         8.73¹         998         Fukuroyamasawa Exp. Watershed, Japan         35.20¹         140.10¹         955           Alsea Watershed Study, OR         44.50¹         -123.90¹         1000         GEOMON Network         49.89¹         14.52¹         982           Artic LTER (Toolik)         68.66¹         -149.59¹         1012         Girnock & Bruntland catchment studies         57.04¹         -3.12²         956           ARS LTAR, midwest         N/A: multiple sites         1006         H.J. Andrews Experimental Forest, OR         44.23¹         -122.21¹         993           Baltimore LTER, MD         39.27¹         -76.65¹         987         Hubbard Brook Experimental Forest, NR         43.94¹         -71.75¹         1017           Bear Brook Watershed, ME         44.87¹         -68.10¹         1008         Indian Himalayan Region         11.03¹         76.02¹         1011           Biscuit Brook, NY         41.99¹         -74.51¹         992         Japan LTER Network         N/A: multiple sites         1004           Boulder Creek, CO         40.01¹         <	Agua Salud Tropical Exp. Catchments, Panama         9.21'         79.73'         1005         Entiat Experimental Forest, WA         47.92'         -120.46'         970         Marcell Experimental Forest, MN           Alpial catchments, Switzerland         47.04'         8.73'         998         Fulvuroyamasawa Exp. Watershed, Japan         35.20'         140.10'         955         Montana Mesonet           Alsea Watershed Study, OR         44.50'         -123.90'         1000         GEOMON Network         49.89'         14.52'         982         Mtv. Ansfield, VT           Arctic LTER (Toolik)         68.66'         -149.99'         1006         H.J. Andrews Experimental Forest, OR         44.23'         -122.21'         993         Oborasawa Exp. Watershed, Japan           Ballimore LTER, MD         39.27'         -76.65'         987         Hubbard Brook Experimental Forest, NH         43.94'         -71.75'         1017         Onyx River, McMurdo Dry Valleys           Bear Brook Watershed, ME         44.87'         -68.10'         1016         iAQUEDUCT project, IT         40.36'         15.13'         974         Panola Mt. Res. 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Catchments, Panama         9.1'         .79.73'         10.05         Ential Experimental Forest, WA         47.92'         .120.46'         970         Marcell Experimental Forest, MN         47.51'         -93.47'           Alptal catchments, Switzerland         47.04'         8.73'         988         Fukuroyamasawa Exp. Watershed, Japan         35.20'         140.10'         955         Montana Mesonet         N/A: multiple sites           Actic LTER (Todik)         68.66'         -149.59'         1010         GlomOk Network         49.88'         14.52'         982         Mt. Mansfield, VT         44.01'         -72.8'           ARS LTAR, midwest         N/A: multiple sites         1006         H.J. Andrews Experimental Forest, OR         4.22'         -122.1'         993         Oborasawa Exp. Watershed, Japan         35.47'         139.20'           Baltimore LTER, MD         39.27'         -76.65'         987         Hubbard Brook Experimental Forest, OR         4.23'         -12.21'         993         Oborasawa Exp. Watershed, Japan         35.47'         139.20'           Baca Brook Watershed, ME         44.87'         -88.10'         1016         IAQUEDUCT project, IT         40.36'         15.18'         974         Pancila Mt. Res. Watershed, GA         33.63'         -84.17'           &lt;</td><td>Agua Salud Tropical Exp. Catchments, Panama         9.21'         7.97.3'         1005         Ential Experimental Forest, WA         47.92'         120.46'         970         Marcell Experimental Forest, MN         47.51'         93.47'         93.47'         973           Alpita Lastchments, Switzerland         47.04'         8.73'         998         Fukuroyamasawa Exp. Watershed, Japan         35.20'         140.10'         955         Montana Mescnet         NVA: multiple Isls: 1021           Alsea Watershed Study, OR         44.50'         -123.90'         1000         GEONON Network         49.89'         14.52'         982         Mt. Mansfield, VT         44.51'         -72.78'         1018           Arcic LTER (Toolik)         68.66'         -149.59'         1012         Girnock &amp; Bruntland catchment studies         57.04'         -3.12'         956         Montana Mescnet         44.06'         -10.56'         1022           ARS LTAR, midwest         NA: multiple state         102         Girnock &amp; Bruntland catchment studies         57.04'         -3.12'         956         Montana Mescnet         44.06'         -10.52'         1902         490         44.23'         -122.21'         993         Oborasswa Exp. Watershed, Japan         35.47'         193.20'         990         58.24'         39.20'         9</td><td>Agua Salud Tropical Exp. Catchments, Panama 9.21 1,79.73 1005 Ential Experimental Forest. WA 47.92 1,20.46 970 Montana Mesonet Mesone</td><td>  Agua Salud Tropical Exp. Catchmonts, Panama   9.21   79,73'   986   Fullar Exporimontal Forest, WA   47,92'   120,46'   970   Marcell Exporimontal Forest, MN   47,51'   93,47'   93,60   South-ros-Serica CZO, CA   37,06'   37,06'   48,69'   123,00'   1000   GEOMON NOWN   48,89'   14,52'   936   Montana Mesoner   NV. Principle   15,00'   123,00'   1000   GEOMON NOWN   48,89'   14,52'   936   Montana Mesoner   NV. Principle   14,52'   72,78'   1019   South-ros-Serica CZO, CA   37,06'   47,99'   44,51'   57,278'   1019   South-ros-Serica CZO, CA   37,06'   47,99'   44,51'   57,278'   1019   South-ros-Serica CZO, CA   49,99'   44,59'   44,51'   57,278'   1019   South-ros-Serica CZO, CA   49,99'   44,99'   44,51'   57,278'   1019   Montana Mesoner   NV. Principle   15,00'   101,562'   1015   South-ros-Serica CZO, CA   47,99'   46,99'   47,99'   44,51'   57,278'   1019   Montana Mesoner   NV. Principle   15,00'   101,562'   1015   South-ros-Serica CZO, CA   47,99'   47,99'   47,99'   44,51'   48,50'   49,50'  </td></tr<>	Agua Salud Tropical Exp. Catchments, Panama 9.21' -7.973' 1005 Entiat Experimental Forest, WA 47.92' -1.20.46' 970 Marcell Experimental Forest, MN 47.51' Alpta (actchments, Switzerland 47.04' 8.73' 998 Fukuroyamasawa Exp. Watershed, Japan 35.20' 140.10' 955 Montana Missonet NIA: multiple of Alsea Watershed Study, OR 44.50' -123.90' 1000 GEOMON Network 49.89' 14.52' 982 Mt. 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Watershed, Japan         35.20'         140.10'         955         Montana Mescnet         NVA: multiple Isls: 1021           Alsea Watershed Study, OR         44.50'         -123.90'         1000         GEONON Network         49.89'         14.52'         982         Mt. Mansfield, VT         44.51'         -72.78'         1018           Arcic LTER (Toolik)         68.66'         -149.59'         1012         Girnock & Bruntland catchment studies         57.04'         -3.12'         956         Montana Mescnet         44.06'         -10.56'         1022           ARS LTAR, midwest         NA: multiple state         102         Girnock & Bruntland catchment studies         57.04'         -3.12'         956         Montana Mescnet         44.06'         -10.52'         1902         490         44.23'         -122.21'         993         Oborasswa Exp. Watershed, Japan         35.47'         193.20'         990         58.24'         39.20'         9	Agua Salud Tropical Exp. Catchments, Panama 9.21 1,79.73 1005 Ential Experimental Forest. WA 47.92 1,20.46 970 Montana Mesonet Mesone	Agua Salud Tropical Exp. Catchmonts, Panama   9.21   79,73'   986   Fullar Exporimontal Forest, WA   47,92'   120,46'   970   Marcell Exporimontal Forest, MN   47,51'   93,47'   93,60   South-ros-Serica CZO, CA   37,06'   37,06'   48,69'   123,00'   1000   GEOMON NOWN   48,89'   14,52'   936   Montana Mesoner   NV. Principle   15,00'   123,00'   1000   GEOMON NOWN   48,89'   14,52'   936   Montana Mesoner   NV. Principle   14,52'   72,78'   1019   South-ros-Serica CZO, CA   37,06'   47,99'   44,51'   57,278'   1019   South-ros-Serica CZO, CA   37,06'   47,99'   44,51'   57,278'   1019   South-ros-Serica CZO, CA   49,99'   44,59'   44,51'   57,278'   1019   South-ros-Serica CZO, CA   49,99'   44,99'   44,51'   57,278'   1019   Montana Mesoner   NV. Principle   15,00'   101,562'   1015   South-ros-Serica CZO, CA   47,99'   46,99'   47,99'   44,51'   57,278'   1019   Montana Mesoner   NV. Principle   15,00'   101,562'   1015   South-ros-Serica CZO, CA   47,99'   47,99'   47,99'   44,51'   48,50'   49,50'