

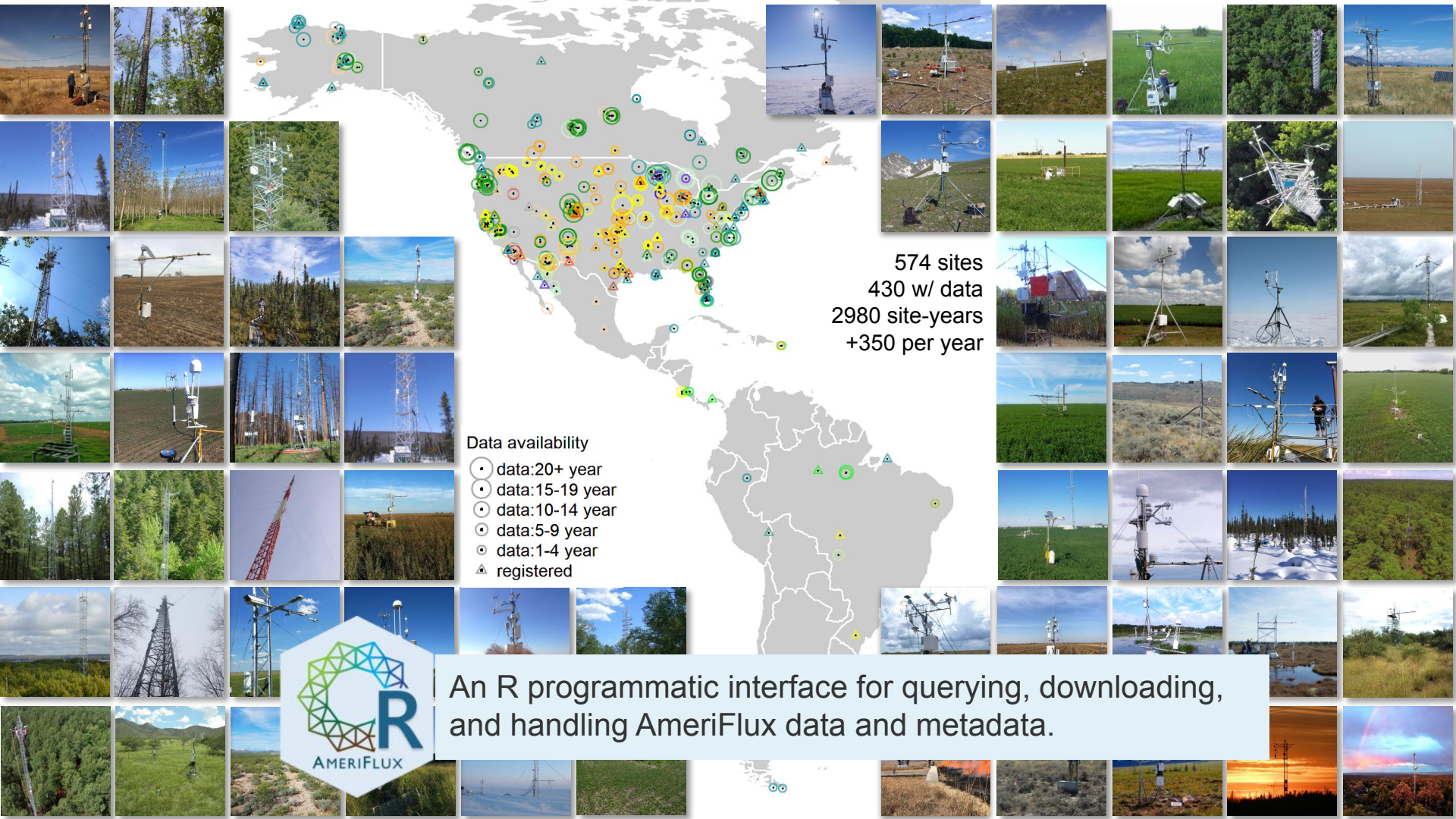


amerifluxr

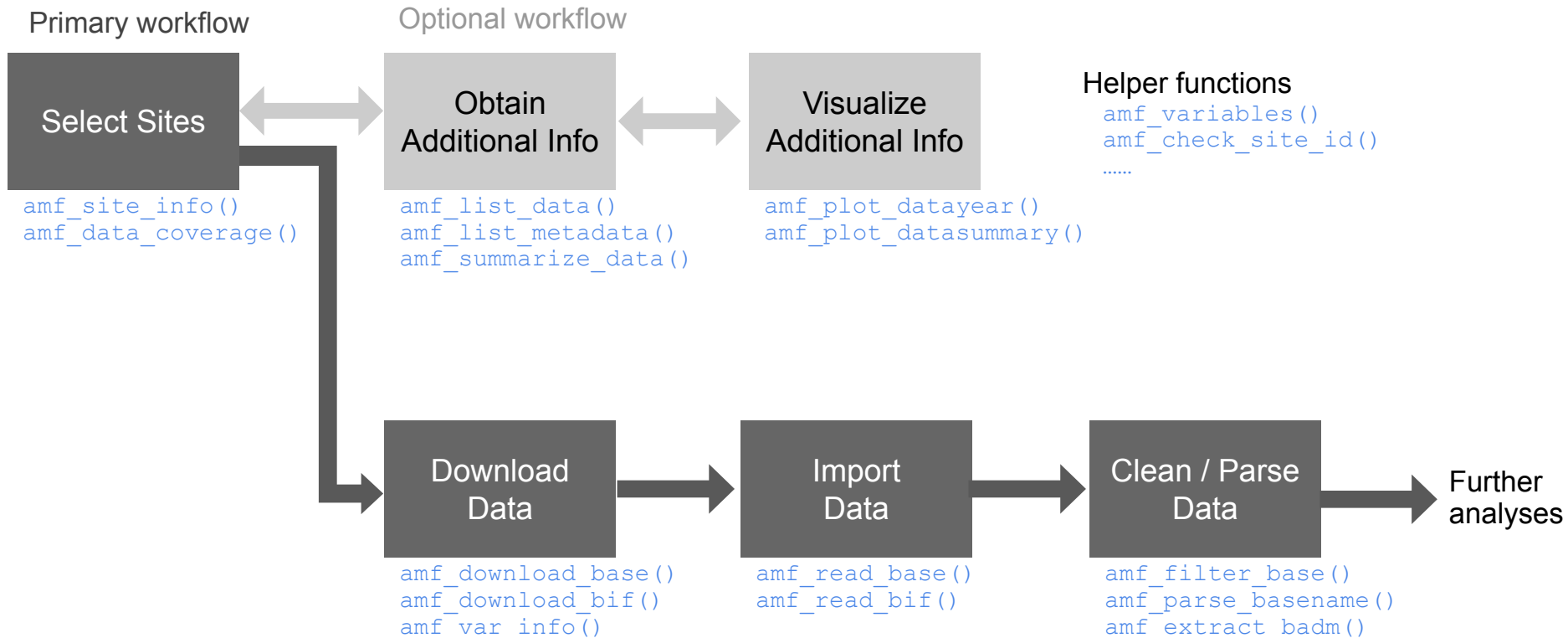
An R programmatic interface for AmeriFlux data



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amerifluxr workflow



Installation

```
install.packages("amerifluxr")  
library("amerifluxr")
```


Obtain AmeriFlux Site List

```
site <- amf_site_info()
```

	SITE_ID	SITE_NAME	COUNTRY	STATE	IGBP	TOWER_BEGAN	URL_AMERIFLUX	TOWER_END	LOCATION_LAT	LOCATION_LONG	LOCATION_ELEV
1	AR-CCa	Carlos Casares agriculture	Argentina	Buenos Aires	CRO	2012	https://ameriflux.lbl.gov/sites/siteinfo/AR-CCa	NA	-35.6210	-61.3181	83.000
2	AR-CCg	Carlos Casares grassland	Argentina	Buenos Aires	GRA	2018	https://ameriflux.lbl.gov/sites/siteinfo/AR-CCg	NA	-35.9244	-61.1855	84.000
3	AR-TF1	Rio Moat bog	Argentina	NA	WET	2016	https://ameriflux.lbl.gov/sites/siteinfo/AR-TF1	2018	-54.9733	-66.7335	40.000
4	AR-TF2	Rio Pipo bog	Argentina	NA	WET	2016	https://ameriflux.lbl.gov/sites/siteinfo/AR-TF2	2018	-54.8269	-68.4549	60.000
5	BR-CMT	Capuaba farm Mato Grosso	Brazil	Mato Grosso	CRO	2015	https://ameriflux.lbl.gov/sites/siteinfo/BR-CMT	2019	-13.2875	-56.0882	427.000
6	BR-CST	Caatinga Serra Talhada	Brazil	Pernambuco	DNF	2014	https://ameriflux.lbl.gov/sites/siteinfo/BR-CST	NA	-7.9682	-38.3842	468.000
7	BR-Cui	Micrometeorological studies project in Amazonian mangrov...	Brazil	NA	WET	2015	https://ameriflux.lbl.gov/sites/siteinfo/BR-Cui	NA	-0.6661	-47.2833	21.000
8	BR-Ma2	Manaus - ZF2 K34	Brazil	Amazonas	EBF	1999	https://ameriflux.lbl.gov/sites/siteinfo/BR-Ma2	NA	-2.6091	-60.2093	130.000
9	BR-Npw	Northern Pantanal Wetland	Brazil	Mato Grosso	WSA	2013	https://ameriflux.lbl.gov/sites/siteinfo/BR-Npw	2017	-16.4980	-56.4120	120.000
10	BR-PRS	Paraíso do Sul	Brazil	Rio Grande do Sul	CRO	2003	https://ameriflux.lbl.gov/sites/siteinfo/BR-PRS	2004	-29.7440	-53.1503	NA
11	BR-Sa1	Santarem-Km67-Primary Forest	Brazil	NA	EBF	2002	https://ameriflux.lbl.gov/sites/siteinfo/BR-Sa1	NA	-2.8567	-54.9589	88.000
12	BR-Sa3	Santarem-Km83-Logged Forest	Brazil	NA	EBF	2000	https://ameriflux.lbl.gov/sites/siteinfo/BR-Sa3	2003	-3.0180	-54.9714	100.000
13	CA-ARB	Attawapiskat River Bog	Canada	Ontario	WET	2010	https://ameriflux.lbl.gov/sites/siteinfo/CA-ARB	NA	52.6950	-83.9452	90.000
14	CA-ARF	Attawapiskat River Fen	Canada	Ontario	WET	2010	https://ameriflux.lbl.gov/sites/siteinfo/CA-ARF	NA	52.7008	-83.9550	88.000
15	CA-BOU	Boulevard Peatland	Canada	Quebec	WET	2018	https://ameriflux.lbl.gov/sites/siteinfo/CA-BOU	NA	50.5244	-63.2064	108.000
16	CA-Ca1	British Columbia - 1949 Douglas-fir stand	Canada	NA	ENF	1997	https://ameriflux.lbl.gov/sites/siteinfo/CA-Ca1	NA	49.8673	-125.3336	300.000
17	CA-Ca2	British Columbia - Clearcut Douglas-fir stand (harvested win...	Canada	NA	ENF	2000	https://ameriflux.lbl.gov/sites/siteinfo/CA-Ca2	NA	49.8705	-125.2909	300.000
18	CA-Ca3	British Columbia - Pole sapling Douglas-fir stand	Canada	NA	ENF	2001	https://ameriflux.lbl.gov/sites/siteinfo/CA-Ca3	NA	49.5346	-124.9004	NA
19	CA-Cbo	Ontario - Mixed Deciduous, Borden Forest Site	Canada	NA	DBF	1995	https://ameriflux.lbl.gov/sites/siteinfo/CA-Cbo	NA	44.3167	-79.9333	120.000
20	CA-CF1	Churchill Fen Site 1	Canada	Manitoba	WET	2007	https://ameriflux.lbl.gov/sites/siteinfo/CA-CF1	2008	58.6658	-93.8300	16.500
21	CA-CF2	Churchill Fen Site 2	Canada	Manitoba	WET	2008	https://ameriflux.lbl.gov/sites/siteinfo/CA-CF2	2011	58.6658	-93.8300	16.500
22	CA-Cha	New Brunswick - Charlie Lake site 01 (immature balsam fir f...	Canada	NA	MF	2004	https://ameriflux.lbl.gov/sites/siteinfo/CA-Cha	2005	45.8847	-67.3569	341.000
23	CA-DB2	Delta Burns Bog 2	Canada	British Columbia	WET	2019	https://ameriflux.lbl.gov/sites/siteinfo/CA-DB2	NA	49.1190	-122.9951	4.000
24	CA-DB8	Delta Burns Bog	Canada	British Columbia	WET	2014	https://ameriflux.lbl.gov/sites/siteinfo/CA-DB8	NA	49.1293	-122.9849	4.000
25	CA-DL1	Daring Lake - Mixed Tundra	Canada	NA	OSH	2004	https://ameriflux.lbl.gov/sites/siteinfo/CA-DL1	NA	64.8689	-111.5748	425.000
26	CA-DL2	Daring Lake - Fen	Canada	NA	WET	2006	https://ameriflux.lbl.gov/sites/siteinfo/CA-DL2	NA	64.8648	-111.5677	416.000

Download Metadata (BADM)

```
floc1 <- amf download_bif(  
  user id = "my user",  
  user email = "my email@mail.com",  
  data policy = "CCBY4.0",  
  agree policy = TRUE,  
  intended use = "other",  
  intended use text = "amerifluxr package demonstration",  
  out dir = tempdir(),  
  verbose = TRUE,  
  site_w_data = TRUE  
)  
  
bif <- amf_read_bif(file = floc1)
```

Download Flux/Met Data (BASE)

```
floc2 <- amf download_base(  
  user id = "my user",  
  user email = "my_email@mail.com",  
  site id = "US-CRT",  
  data product = "BASE-BADM",  
  data policy = "CCBY4.0",  
  agree policy = TRUE,  
  intended use = "remote sensing",  
  intended use text = "validate the model of GPP estimation",  
  verbose = TRUE,  
  out_dir = tempdir())
```

```
base <- amf read_base(file = floc2,  
                      unzip = TRUE,  
                      parse_timestamp = TRUE)
```

Additional Reading

- Today's demonstration: https://github.com/chuhousen/ameriflux_demo_ecn
- 'amerifluxr' package home <https://chuhousen.github.io/amerifluxr/index.html>
 - **Site Selection Vignette** demonstrates examples of site queries based on sites' general information and availability of metadata and data.
 - **Data Import Vignette** demonstrates examples to download, import, parse, and clean data for further use.

[Synthesis] Test a new ET model

- Croplands + Grasslands
- Latent heat flux
- Outgoing longwave radiation
- air temperature & humidity (1 level or more)
- Canopy height information
- 2017-2021 period

