

oce map projections available in rgdal and sf (update from 2020-01-16)

Summary of consequences for oce: remove `healpix` and `rhealpix`, since these cause errors in `sf`, and since they are basically useless anyway (see <http://dankelley.github.io/r/2020/01/04/oce-proj.html>) because `mapPlot()` does not handle the cutout regions, instead drawing landmasses where the world view is interrupted.

Introduction

The goal is to test the existing oce projections, and also the new proj projections. The latter are recovered by typing the following in a unix console.

```
proj -l          # list names of all projections
```

but note that a handfull are actually transformations, not projections, and they are not tested here.

It is possible to get more information on any given projection with e.g.

```
proj -l=ccon     # list info on ccon
```

Overlap

These functions are in oce, but not in proj: **longlat**, **latlong**.

These functions are in proj, but not in oce: **affine**, **airy**, **alsk**, **apian**, **august**, **bacon**, **bertin**, **boggs**, **calcofi**, **cart**, **ccon**, **chamb**, **comill**, **denoy**, **eqdc**, **geogoffset**, **gins**, **gs**, **gs**, **hammer**, **imw__p**, **isea**, **krovak**, **labrd**, **lagrng**, **larr**, **lask**, **lonlat**, **latlon**, **lcca**, **lee__os**, **lsat**, **misrsom**, **nicol**, **nzmng**, **noop**, **ortel**, **patterson**, **pop**, **push**, **rpoly**, **somerc**, **gstmerc**, **tcc**, **times**, **tobmerc**, **webmerc**.

Test oce list

```
#options(warn=-1)
zero <- cbind(0, 0)
ll <- sf::st_crs("+proj=longlat")$proj4string
for (projOld in oceTest) {
  cat("projOld '", projOld, "'\n", sep="")
  xy <- try(rgdal::project(zero, projOld), silent=TRUE)
  if (inherits(xy, "try-error")) {
    cat("gdal::project(..., '", projOld, "') failed\n", sep="")
  } else {
    cat("gdal with old: (0,0) -> (", xy[1], ",", xy[2], ")\n", sep="")
  }
  projNew <- try(sf::st_crs(projOld)$proj4string, silent=TRUE)
  if (inherits(projNew, "try-error")) {
    cat("sf::st_crs(projOld)$proj4string failed\n")
  } else {
```

```

cat("projNew '", projNew, "'\n", sep="")
cat(' is projNew bad?', inherits(projNew, "try-error"), "\n")
if (!is.na(projNew)) {
  cat("new:", projNew, "\n")
  xy <- sf::sf_project(ll, projOld, zero)
  if (inherits(xy, "try-error")) {
    cat("sf::sf_project failed with projOld='", projOld, "'\n", sep="")
  } else {
    cat("sf      with old: (0,0) -> (", xy[1], ",", xy[2], ")\n", sep="")
    xy <- sf::sf_project(ll, projNew, zero)
    if (inherits(xy, "try-error")) {
      cat("cannot transform projNew='", projNew, "'\n", sep="")
    } else {
      cat("sf      with new: (0,0) -> (", xy[1], ",", xy[2], ")\n", sep="")
      xy <- rgdal::project(zero, projNew)
    }
  }
} else {
  cat("sf::st_crs() cannot handle this string\n")
}
cat("\n")
}

```

```

## projOld '+proj=aea +lat_1=10 +lat_2=60 +lon_0=-40'
## gdal with old: (0,0) -> (4669884,857748.7)
## projNew '+proj=aea +lat_0=0 +lon_0=-40 +lat_1=10 +lat_2=60 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=aea +lat_0=0 +lon_0=-40 +lat_1=10 +lat_2=60 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (4669884,857748.7)
## sf      with new: (0,0) -> (4669884,857748.7)
##
## projOld '+proj=aeqd +lon_0=-45'
## gdal with old: (0,0) -> (5009377,3.067359e-10)
## projNew '+proj=aeqd +lat_0=0 +lon_0=-45 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=aeqd +lat_0=0 +lon_0=-45 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5009377,3.067359e-10)
## sf      with new: (0,0) -> (5009377,3.067359e-10)
##
## projOld '+proj=aitoff +lon_0=-45'
## gdal with old: (0,0) -> (5009377,0)
## projNew '+proj=aitoff +lon_0=-45 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=aitoff +lon_0=-45 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5009377,0)
## sf      with new: (0,0) -> (5009377,0)
##
## projOld '+proj=bipc'
## gdal with old: (0,0) -> (2235009,-14651858)
## projNew '+proj=bipc +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=bipc +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (2235009,-14651858)

```

```

## sf      with new: (0,0) -> (2235009,-14651858)
##
## projOld '+proj=bonne +lat_1=45'
## gdal with old: (0,0) -> (0,-4984944)
## projNew '+proj=bonne +lat_1=45 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=bonne +lat_1=45 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,-4984944)
## sf      with new: (0,0) -> (0,-4984944)
##
## projOld '+proj=cass +lon_0=-45'
## gdal with old: (0,0) -> (5009377,0)
## projNew '+proj=cass +lat_0=0 +lon_0=-45 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=cass +lat_0=0 +lon_0=-45 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5009377,0)
## sf      with new: (0,0) -> (5009377,0)
##
## projOld '+proj=cass +lon_0=-45'
## gdal with old: (0,0) -> (5009377,0)
## projNew '+proj=cass +lat_0=0 +lon_0=-45 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=cass +lat_0=0 +lon_0=-45 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5009377,0)
## sf      with new: (0,0) -> (5009377,0)
##
## projOld '+proj=cc'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=cc +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=cc +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=cea'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=cea +lat_ts=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=cea +lat_ts=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=collg'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=collg +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=collg +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=crast'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=crast +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE

```

```

## new: +proj=crast +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=eck1'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=eck1 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=eck1 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=eck2'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=eck2 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=eck2 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=eck3'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=eck3 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=eck3 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=eck4'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=eck4 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=eck4 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=eck5'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=eck5 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=eck5 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=eck6'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=eck6 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=eck6 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=eqc'
## gdal with old: (0,0) -> (0,0)

```

```

## projNew '+proj=eqc +lat_ts=0 +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=eqc +lat_ts=0 +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=euler +lat_1=45 +lat_2=50 +lon_0=-40'
## gdal with old: (0,0) -> (5478194,1441354)
## projNew '+proj=euler +lat_1=45 +lat_2=50 +lon_0=-40 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=euler +lat_1=45 +lat_2=50 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (5478194,1441354)
## sf   with new: (0,0) -> (5478194,1441354)
##
## projOld '+proj=etmerc +ellps=WGS84 +lon_0=-40'
## gdal with old: (0,0) -> (4869526,0)
## projNew '+proj=tmerc +lat_0=0 +lon_0=-40 +k=1 +x_0=0 +y_0=0 +ellps=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=tmerc +lat_0=0 +lon_0=-40 +k=1 +x_0=0 +y_0=0 +ellps=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (4869526,0)
## sf   with new: (0,0) -> (4869526,0)
##
## projOld '+proj=etmerc +ellps=WGS84 +lon_0=-40'
## gdal with old: (0,0) -> (4869526,0)
## projNew '+proj=tmerc +lat_0=0 +lon_0=-40 +k=1 +x_0=0 +y_0=0 +ellps=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=tmerc +lat_0=0 +lon_0=-40 +k=1 +x_0=0 +y_0=0 +ellps=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (4869526,0)
## sf   with new: (0,0) -> (4869526,0)
##
## projOld '+proj=fahey'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=fahey +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=fahey +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=fouc'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=fouc +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=fouc +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=fouc_s'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=fouc_s +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=fouc_s +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##

```

```

## projOld '+proj=gall'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=gall +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=gall +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=geos +h=1e8'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=geos +lon_0=0 +h=100000000 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=geos +lon_0=0 +h=100000000 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=gn_sinu +n=6 +m=3'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=gn_sinu +n=6 +m=3 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=gn_sinu +n=6 +m=3 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=gnom +lon_0=-40'
## gdal with old: (0,0) -> (5351892,0)
## projNew '+proj=gnom +lat_0=0 +lon_0=-40 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=gnom +lat_0=0 +lon_0=-40 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (5351892,0)
## sf   with new: (0,0) -> (5351892,0)
##
## projOld '+proj=goode'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=goode +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=goode +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=hatano'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=hatano +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=hatano +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=igh'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=igh +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=igh +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)

```

```

## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=kav5'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=kav5 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=kav5 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=kav7'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=kav7 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=kav7 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=laea +lon_0=-40'
## gdal with old: (0,0) -> (4362903,0)
## projNew '+proj=laea +lat_0=0 +lon_0=-40 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=laea +lat_0=0 +lon_0=-40 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (4362903,0)
## sf      with new: (0,0) -> (4362903,0)
##
## projOld '+proj=longlat'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=longlat +datum=WGS84 +no_defs'
##   is projNew bad? FALSE
## new: +proj=longlat +datum=WGS84 +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=latlong'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=longlat +datum=WGS84 +no_defs'
##   is projNew bad? FALSE
## new: +proj=longlat +datum=WGS84 +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=lcc +lat_1=30 +lat_2=70 +lon_0=-40'
## gdal with old: (0,0) -> (5628709,1578828)
## projNew '+proj=lcc +lat_0=0 +lon_0=-40 +lat_1=30 +lat_2=70 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=lcc +lat_0=0 +lon_0=-40 +lat_1=30 +lat_2=70 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5628709,1578828)
## sf      with new: (0,0) -> (5628709,1578828)
##
## projOld '+proj=leac +lon_0=-40'
## gdal with old: (0,0) -> (4362502,770985.1)
## projNew '+proj=leac +lon_0=-40 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE

```

```

## new: +proj=leac +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (4362502,770985.1)
## sf      with new: (0,0) -> (4362502,770985.1)
##
## projOld '+proj=loxim'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=loxim +lat_1=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=loxim +lat_1=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=mbt_s'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=mbt_s +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=mbt_s +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=mbt_fps'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=mbt_fps +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=mbt_fps +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=mbtfpp'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=mbtfpp +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=mbtfpp +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=mbtfpq'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=mbtfpq +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=mbtfpq +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=mbtfps'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=mbtfps +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=mbtfps +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=merc'
## gdal with old: (0,0) -> (0,7.081155e-10)

```



```

## projNew '+proj=merc +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=merc +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,7.081155e-10)
## sf with new: (0,0) -> (0,7.081155e-10)
##
## projOld '+proj=mil_os'
## gdal with old: (0,0) -> (-2123168,-1819674)
## projNew '+proj=mil_os +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=mil_os +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (-2123168,-1819674)
## sf with new: (0,0) -> (-2123168,-1819674)
##
## projOld '+proj=mill'
## gdal with old: (0,0) -> (0,-8.841549e-10)
## projNew '+proj=mill +R_A +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=mill +R_A +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,-8.841549e-10)
## sf with new: (0,0) -> (0,-8.841549e-10)
##
## projOld '+proj=moll'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=moll +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=moll +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## projOld '+proj=murd1 +lat_1=30 +lat_2=60 +lon_0=-40'
## gdal with old: (0,0) -> (5361528,1350915)
## projNew '+proj=murd1 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=murd1 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (5361528,1350915)
## sf with new: (0,0) -> (5361528,1350915)
##
## projOld '+proj=murd2 +lat_1=30 +lat_2=60 +lon_0=-40'
## gdal with old: (0,0) -> (5897888,1459482)
## projNew '+proj=murd2 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=murd2 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (5897888,1459482)
## sf with new: (0,0) -> (5897888,1459482)
##
## projOld '+proj=murd3 +lat_1=30 +lat_2=60 +lon_0=-40'
## gdal with old: (0,0) -> (5384331,1373406)
## projNew '+proj=murd3 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=murd3 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (5384331,1373406)
## sf with new: (0,0) -> (5384331,1373406)
##

```

```

## projOld '+proj=natearth'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=natearth +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=natearth +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=nell'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=nell +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=nell +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=nell_h'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=nell_h +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=nell_h +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=nsper +h=90000000'
## gdal with old: (0,0) -> (0,0)

## Warning in CPL_crs_parameters(x): GDAL Error 1: PROJ: proj_as_wkt: Unsupported
## conversion method: Vertical Perspective

## Warning in CPL_crs_parameters(x): GDAL Error 1: PROJ: proj_as_wkt: Unsupported
## conversion method: Vertical Perspective

## projNew '+proj=nsper +lat_0=0 +lon_0=0 +h=90000000 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=nsper +lat_0=0 +lon_0=0 +h=90000000 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=ocea'
## gdal with old: (0,0) -> (10018754,3.905483e-10)
## projNew '+proj=ocea +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=ocea +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (10018754,3.905483e-10)
## sf   with new: (0,0) -> (10018754,3.905483e-10)
##
## projOld '+proj=omerc +lat_1=30 +lon_1=-40 +lat_2=60'
## gdal with old: (0,0) -> (0,1.411483e-09)
## projNew '+proj=omerc +lat_0=0 +lonc=0 +alpha=0 +gamma=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=omerc +lat_0=0 +lonc=0 +alpha=0 +gamma=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,1.411483e-09)
## sf   with new: (0,0) -> (0,1.411483e-09)
##

```

```

## projOld '+proj=ortho'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=ortho +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=ortho +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=pconic +lat_1=20 +lat_2=60 +lon_0=-40'
## gdal with old: (0,0) -> (5280655,1205140)
## projNew '+proj=pconic +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=pconic +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (5280655,1205140)
## sf   with new: (0,0) -> (5280655,1205140)
##
## projOld '+proj=poly +lon_0=-40'
## gdal with old: (0,0) -> (4452780,0)
## projNew '+proj=poly +lat_0=0 +lon_0=-40 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=poly +lat_0=0 +lon_0=-40 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (4452780,0)
## sf   with new: (0,0) -> (4452780,0)
##
## projOld '+proj=putp1'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=putp1 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=putp1 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=putp2'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=putp2 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=putp2 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=putp3'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=putp3 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=putp3 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=putp5'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=putp5 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=putp5 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)

```

```

## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=putp6'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=putp6 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=putp6 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=putp3p'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=putp3p +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=putp3p +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=putp5p'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=putp5p +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=putp5p +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=putp6p'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=putp6p +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=putp6p +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=qua_aut'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=qua_aut +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=qua_aut +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=qsc +lon_0=-100'
## gdal with old: (0,0) -> (12767567,0)
## projNew '+proj=qsc +lat_0=0 +lon_0=-100 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=qsc +lat_0=0 +lon_0=-100 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (12767567,0)
## sf      with new: (0,0) -> (12767567,0)
##
## projOld '+proj=robin'
## gdal with old: (0,0) -> (0,-4.488677e-11)
## projNew '+proj=robin +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE

```

```

## new: +proj=robin +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,-4.488677e-11)
## sf      with new: (0,0) -> (0,-4.488677e-11)
##
## projOld '+proj=rouss +lon_0=-40'
## gdal with old: (0,0) -> (4643785,0)
## projNew '+proj=rouss +lon_0=-40 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=rouss +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (4643785,0)
## sf      with new: (0,0) -> (4643785,0)
##
## projOld '+proj=sinu'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=sinu +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=sinu +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=stere +lat_0=90'
## gdal with old: (0,0) -> (0,-12713600)
## projNew '+proj=stere +lat_0=90 +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=stere +lat_0=90 +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,-12713600)
## sf      with new: (0,0) -> (0,-12713600)
##
## projOld '+proj=sterea +lat_0=90'
## gdal with old: (0,0) -> (0,-12713600)
## projNew '+proj=sterea +lat_0=90 +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=sterea +lat_0=90 +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,-12713600)
## sf      with new: (0,0) -> (0,-12713600)
##
## projOld '+proj=tcea +lon_0=-40'
## gdal with old: (0,0) -> (4099787,0)
## projNew '+proj=tcea +lon_0=-40 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=tcea +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (4099787,0)
## sf      with new: (0,0) -> (4099787,0)
##
## projOld '+proj=tissot +lat_1=20 +lat_2=60 +lon_0=-40'
## gdal with old: (0,0) -> (5938018,-678110.7)
## projNew '+proj=tissot +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=tissot +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5938018,-678110.7)
## sf      with new: (0,0) -> (5938018,-678110.7)
##
## projOld '+proj=tmerc +lon_0=-40 +lat_1=30 +lat_2=60'
## gdal with old: (0,0) -> (4869526,0)

```

```

## projNew '+proj=tmerc +lat_0=0 +lon_0=-40 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=tmerc +lat_0=0 +lon_0=-40 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (4869526,0)
## sf   with new: (0,0) -> (4869526,0)
##
## projOld '+proj=tpeqd +lat_1=30 +lon_1=-80'
## gdal with old: (0,0) -> (4527967,0)
## projNew '+proj=tpeqd +lat_1=30 +lon_1=-80 +lat_2=0 +lon_2=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=tpeqd +lat_1=30 +lon_1=-80 +lat_2=0 +lon_2=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (4527967,0)
## sf   with new: (0,0) -> (4527967,0)
##
## projOld '+proj=tpers +h=1e8'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=tpers +h=100000000 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=tpers +h=100000000 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=ups +ellps=WGS84'
## gdal with old: (0,0) -> (2e+06,-10637318)
## projNew '+proj=ups +ellps=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=ups +ellps=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (2e+06,-10637318)
## sf   with new: (0,0) -> (2e+06,-10637318)
##
## projOld '+proj=urmfps +n=0.9'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=urmfps +n=0.9 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=urmfps +n=0.9 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##
## projOld '+proj=utm +ellps=WGS84 +lon_0=-40'
## gdal with old: (0,0) -> (5223033,0)
## projNew '+proj=tmerc +lat_0=0 +lon_0=-183 +k=0.9996 +x_0=500000 +y_0=0 +ellps=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=tmerc +lat_0=0 +lon_0=-183 +k=0.9996 +x_0=500000 +y_0=0 +ellps=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (5223033,0)
## sf   with new: (0,0) -> (166021.4,19995930)
##
## projOld '+proj=vandg'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=vandg +R_A +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
##   is projNew bad? FALSE
## new: +proj=vandg +R_A +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf   with old: (0,0) -> (0,0)
## sf   with new: (0,0) -> (0,0)
##

```

```

## projOld '+proj=vitk1 +lat_1=20 +lat_2=60 +lon_0=-40'
## gdal with old: (0,0) -> (5296219,1262193)
## projNew '+proj=vitk1 +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=vitk1 +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (5296219,1262193)
## sf with new: (0,0) -> (5296219,1262193)
##
## projOld '+proj=wag1'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=wag1 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=wag1 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## projOld '+proj=wag2'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=wag2 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=wag2 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## projOld '+proj=wag3'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=wag3 +lat_ts=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=wag3 +lat_ts=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## projOld '+proj=wag4'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=wag4 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=wag4 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## projOld '+proj=wag5'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=wag5 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=wag5 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## projOld '+proj=wag6'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=wag6 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=wag6 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)

```

```

## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=weren'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=weren +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=weren +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=wink1'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=wink1 +lon_0=0 +lat_ts=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=wink1 +lon_0=0 +lat_ts=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## projOld '+proj=wintri'
## gdal with old: (0,0) -> (0,0)
## projNew '+proj=wintri +lon_0=0 +lat_1=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs'
## is projNew bad? FALSE
## new: +proj=wintri +lon_0=0 +lat_1=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)

```

Test proj list

```

#options(warn=-1)
zero <- cbind(0, 0)
ll <- sf::st_crs("+proj=longlat")$proj4string
for (projOld in projTest) {
  cat("old:", projOld, "\n")
  xy <- try(rgdal::project(zero, projOld), silent=TRUE)
  if (inherits(xy, "try-error")) {
    cat("gdal::project(..., '", projOld, "') failed\n", sep="")
  } else {
    cat("gdal with old: (0,0) -> (", xy[1], ",", xy[2], ")\n", sep="")
  }
  projNew <- try(sf::st_crs(projOld)$proj4string, silent=TRUE)
  if (!is.na(projNew)) {
    cat("new:", projNew, "\n")
    xy <- sf::sf_project(ll, projOld, zero)
    cat("sf      with old: (0,0) -> (", xy[1], ",", xy[2], ")\n", sep="")
    xy <- sf::sf_project(ll, projNew, zero)
    cat("sf      with new: (0,0) -> (", xy[1], ",", xy[2], ")\n", sep="")
    xy <- rgdal::project(zero, projNew)
  } else {
    cat("sf::st_crs() cannot handle this string\n")
  }
  cat("\n")
}

```



```

## old: +proj=aea +lat_1=10 +lat_2=60 +lon_0=-40
## gdal with old: (0,0) -> (4669884,857748.7)
## new: +proj=aea +lat_0=0 +lon_0=-40 +lat_1=10 +lat_2=60 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (4669884,857748.7)
## sf with new: (0,0) -> (4669884,857748.7)
##
## old: +proj=aeqd
## gdal with old: (0,0) -> (0,0)
## new: +proj=aeqd +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=affine
## gdal with old: (0,0) -> (0,0)
## new: +proj=affine +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=airy
## gdal with old: (0,0) -> (0,0)
## new: +proj=airy +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=aitoff
## gdal with old: (0,0) -> (0,0)
## new: +proj=aitoff +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=alsk
## gdal with old: (0,0) -> (1400338545,-1610256873)
## new: +proj=alsk +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (1400338545,-1610256873)
## sf with new: (0,0) -> (1400338545,-1610256873)
##
## old: +proj=apian
## gdal with old: (0,0) -> (0,0)
## new: +proj=apian +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=august
## gdal with old: (0,0) -> (0,0)
## new: +proj=august +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=bacon
## gdal with old: (0,0) -> (0,0)
## new: +proj=bacon +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##

```

```

## old: +proj=bertin1953
## gdal with old: (0,0) -> (-1659633,-4370466)
## new: +proj=bertin1953 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (-1659633,-4370466)
## sf with new: (0,0) -> (-1659633,-4370466)
##
## old: +proj=bipc
## gdal with old: (0,0) -> (2235009,-14651858)
## new: +proj=bipc +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (2235009,-14651858)
## sf with new: (0,0) -> (2235009,-14651858)
##
## old: +proj=boggs
## gdal with old: (0,0) -> (0,0)
## new: +proj=boggs +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=bonne +lat_1=45
## gdal with old: (0,0) -> (0,-4984944)
## new: +proj=bonne +lat_1=45 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,-4984944)
## sf with new: (0,0) -> (0,-4984944)
##
## old: +proj=calcofi
## gdal with old: (0,0) -> (507.9077,-1138.973)
## new: +proj=calcofi +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (507.9077,-1138.973)
## sf with new: (0,0) -> (507.9077,-1138.973)
##
## old: +proj=cart
## gdal with old: (0,0) -> (0,0)
## new: +proj=geocent +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (6378137,0)
## sf with new: (0,0) -> (6378137,0)
##
## old: +proj=cass
## gdal with old: (0,0) -> (0,0)
## new: +proj=cass +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=cc
## gdal with old: (0,0) -> (0,0)
## new: +proj=cc +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=ccon +lat_1=45
## gdal with old: (0,0) -> (0,-6378137)
## new: +proj=ccon +lat_1=45 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,-6378137)
## sf with new: (0,0) -> (0,-6378137)
##

```

```

## old: +proj=cea
## gdal with old: (0,0) -> (0,0)
## new: +proj=cea +lat_ts=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=chamb +lat_1=10 +lon_1=30 +lon_2=40
## gdal with old: (0,0) -> (-2404290,0)
## new: +proj=chamb +lat_1=10 +lon_1=30 +lon_2=40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (-2404290,0)
## sf      with new: (0,0) -> (-2404290,0)
##
## old: +proj=collg
## gdal with old: (0,0) -> (0,0)
## new: +proj=collg +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=comill
## gdal with old: (0,0) -> (0,0)
## new: +proj=comill +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=crast
## gdal with old: (0,0) -> (0,0)
## new: +proj=crast +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=denoy
## gdal with old: (0,0) -> (0,0)
## new: +proj=denoy +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=eck1
## gdal with old: (0,0) -> (0,0)
## new: +proj=eck1 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=eck2
## gdal with old: (0,0) -> (0,0)
## new: +proj=eck2 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=eck3
## gdal with old: (0,0) -> (0,0)
## new: +proj=eck3 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##

```

```

## old: +proj=eck4
## gdal with old: (0,0) -> (0,0)
## new: +proj=eck4 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=eck5
## gdal with old: (0,0) -> (0,0)
## new: +proj=eck5 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=eck6
## gdal with old: (0,0) -> (0,0)
## new: +proj=eck6 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=eqc
## gdal with old: (0,0) -> (0,0)
## new: +proj=eqc +lat_ts=0 +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=eqdc +lat_1=55 +lat_2=60
## gdal with old: (0,0) -> (0,0)
## new: +proj=eqdc +lat_0=0 +lon_0=0 +lat_1=55 +lat_2=60 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=euler +lat_1=67 +lat_2=75
## gdal with old: (0,0) -> (0,0)
## new: +proj=euler +lat_1=67 +lat_2=75 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=etmerc
## gdal with old: (0,0) -> (0,0)
## new: +proj=tmerc +lat_0=0 +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=fahey
## gdal with old: (0,0) -> (0,0)
## new: +proj=fahey +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=fouc
## gdal with old: (0,0) -> (0,0)
## new: +proj=fouc +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##

```

```

## old: +proj=fouc_s
## gdal with old: (0,0) -> (0,0)
## new: +proj=fouc_s +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=gall
## gdal with old: (0,0) -> (0,0)
## new: +proj=gall +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=geogoffset
## gdal with old: (0,0) -> (0,0)
## new: +proj=geogoffset +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=geos +h=1e8
## gdal with old: (0,0) -> (0,0)
## new: +proj=geos +lon_0=0 +h=100000000 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=gins8
## gdal with old: (0,0) -> (0,0)
## new: +proj=gins8 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=gn_sinu +n=6 +m=3
## gdal with old: (0,0) -> (0,0)
## new: +proj=gn_sinu +n=6 +m=3 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=gnom
## gdal with old: (0,0) -> (0,0)
## new: +proj=gnom +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=goode
## gdal with old: (0,0) -> (0,0)
## new: +proj=goode +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=gs48
## gdal with old: (0,0) -> (32274266,7751687)
## new: +proj=gs48 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (32274266,7751687)
## sf      with new: (0,0) -> (32274266,7751687)
##

```

```

## old: +proj=gs50
## gdal with old: (0,0) -> (23082711329,-13573057574)
## new: +proj=gs50 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (23082711329,-13573057574)
## sf with new: (0,0) -> (23082711329,-13573057574)
##
## old: +proj=hammer
## gdal with old: (0,0) -> (0,0)
## new: +proj=hammer +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=hatano
## gdal with old: (0,0) -> (0,0)
## new: +proj=hatano +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=igh
## gdal with old: (0,0) -> (0,0)
## new: +proj=igh +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=imw_p +lat_1=30 +lat_2=-40
## gdal with old: (0,0) -> (0,0)
## new: +proj=imw_p +lon_0=0 +lat_1=30 +lat_2=-40 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=isea
## gdal with old: (0,0) -> (-1332944,3326857)
## new: +proj=isea +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (-1332944,3326857)
## sf with new: (0,0) -> (-1332944,3326857)
##
## old: +proj=kav5
## gdal with old: (0,0) -> (0,0)
## new: +proj=kav5 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=kav7
## gdal with old: (0,0) -> (0,0)
## new: +proj=kav7 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=krovak
## gdal with old: (0,0) -> (0,-7118426)
## new: +proj=krovak +lat_0=0 +lon_0=0 +alpha=30.2881397527778 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m
## sf with old: (0,0) -> (0,-7118426)
## sf with new: (0,0) -> (0,-7118426)
##

```

```

## old: +proj=labrd +lon_0=40 +lat_0=-10
## gdal with old: (0,0) -> (-4861426,1105769)
## new: +proj=labrd +lat_0=-10 +lon_0=40 +azi=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (-4861426,1105769)
## sf with new: (0,0) -> (-4861426,1105769)
##
## old: +proj=laea
## gdal with old: (0,0) -> (0,0)
## new: +proj=laea +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=lagrng
## gdal with old: (0,0) -> (0,0)
## new: +proj=lagrng +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=larr
## gdal with old: (0,0) -> (0,0)
## new: +proj=larr +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=lask
## gdal with old: (0,0) -> (0,0)
## new: +proj=lask +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=lonlat
## gdal with old: (0,0) -> (0,0)
## new: +proj=longlat +datum=WGS84 +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=latlon
## gdal with old: (0,0) -> (0,0)
## new: +proj=longlat +datum=WGS84 +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=lcc +lat_1=30 +lat_2=70 +lon_0=-40
## gdal with old: (0,0) -> (5628709,1578828)
## new: +proj=lcc +lat_0=0 +lon_0=-40 +lat_1=30 +lat_2=70 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (5628709,1578828)
## sf with new: (0,0) -> (5628709,1578828)
##
## old: +proj=lcca +lat_0=35
## gdal with old: (0,0) -> (0,-4113452)
## new: +proj=lcca +lat_0=35 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,-4113452)
## sf with new: (0,0) -> (0,-4113452)
##

```

```

## old: +proj=leac
## gdal with old: (0,0) -> (0,0)
## new: +proj=leac +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=lee_os
## gdal with old: (0,0) -> (-12466562,93160410)
## new: +proj=lee_os +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (-12466562,93160410)
## sf      with new: (0,0) -> (-12466562,93160410)
##
## old: +proj=loxim
## gdal with old: (0,0) -> (0,0)
## new: +proj=loxim +lat_1=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=lsat +lat_1=-60 +lat_2=60 +lsat=2 +path=2
## gdal with old: (0,0) -> (18650560,9627463)
## new: +proj=lsat +lsat=2 +path=2 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (18650560,9627463)
## sf      with new: (0,0) -> (18650560,9627463)
##
## old: +proj=mbt_s
## gdal with old: (0,0) -> (0,0)
## new: +proj=mbt_s +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=mbt_fps
## gdal with old: (0,0) -> (0,0)
## new: +proj=mbt_fps +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=mbtfpp
## gdal with old: (0,0) -> (0,0)
## new: +proj=mbtfpp +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=mbtfpq
## gdal with old: (0,0) -> (0,0)
## new: +proj=mbtfpq +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=mbtfps
## gdal with old: (0,0) -> (0,0)
## new: +proj=mbtfps +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##

```



```

## old: +proj=merc
## gdal with old: (0,0) -> (0,7.081155e-10)
## new: +proj=merc +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,7.081155e-10)
## sf      with new: (0,0) -> (0,7.081155e-10)
##
## old: +proj=mil_os
## gdal with old: (0,0) -> (-2123168,-1819674)
## new: +proj=mil_os +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (-2123168,-1819674)
## sf      with new: (0,0) -> (-2123168,-1819674)
##
## old: +proj=mill
## gdal with old: (0,0) -> (0,-8.841549e-10)
## new: +proj=mill +R_A +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,-8.841549e-10)
## sf      with new: (0,0) -> (0,-8.841549e-10)
##
## old: +proj=misrsom +path=1
## gdal with old: (0,0) -> (18922397,9157574)
## new: +proj=misrsom +path=1 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (18922397,9157574)
## sf      with new: (0,0) -> (18922397,9157574)
##
## old: +proj=moll
## gdal with old: (0,0) -> (0,0)
## new: +proj=moll +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=murd1 +lat_1=30 +lat_2=60 +lon_0=-40
## gdal with old: (0,0) -> (5361528,1350915)
## new: +proj=murd1 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5361528,1350915)
## sf      with new: (0,0) -> (5361528,1350915)
##
## old: +proj=murd2 +lat_1=30 +lat_2=60 +lon_0=-40
## gdal with old: (0,0) -> (5897888,1459482)
## new: +proj=murd2 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5897888,1459482)
## sf      with new: (0,0) -> (5897888,1459482)
##
## old: +proj=murd3 +lat_1=30 +lat_2=60 +lon_0=-40
## gdal with old: (0,0) -> (5384331,1373406)
## new: +proj=murd3 +lat_1=30 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5384331,1373406)
## sf      with new: (0,0) -> (5384331,1373406)
##
## old: +proj=natearth
## gdal with old: (0,0) -> (0,0)
## new: +proj=natearth +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##

```

```

## old: +proj=natearth2
## gdal with old: (0,0) -> (0,0)
## new: +proj=natearth2 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=nell
## gdal with old: (0,0) -> (0,0)
## new: +proj=nell +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=nell_h
## gdal with old: (0,0) -> (0,0)
## new: +proj=nell_h +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=nicol
## gdal with old: (0,0) -> (0,0)
## new: +proj=nicol +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=nsper +h=90000000
## gdal with old: (0,0) -> (0,0)

## Warning in CPL_crs_parameters(x): GDAL Error 1: PROJ: proj_as_wkt: Unsupported
## conversion method: Vertical Perspective

## Warning in CPL_crs_parameters(x): GDAL Error 1: PROJ: proj_as_wkt: Unsupported
## conversion method: Vertical Perspective

## new: +proj=nsper +lat_0=0 +lon_0=0 +h=90000000 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=nzmg
## gdal with old: (0,0) -> (3889446253,-7280543850)
## new: +proj=nzmg +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (3889446253,-7280543850)
## sf      with new: (0,0) -> (3889446253,-7280543850)
##
## old: +proj=noop
## gdal with old: (0,0) -> (0,0)
## new: +proj=noop +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=ocea
## gdal with old: (0,0) -> (10018754,3.905483e-10)
## new: +proj=ocea +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (10018754,3.905483e-10)
## sf      with new: (0,0) -> (10018754,3.905483e-10)
##

```

```

## old: +proj=omerc +lat_1=30 +lon_1=-40 +lat_2=60
## gdal with old: (0,0) -> (0,1.411483e-09)
## new: +proj=omerc +lat_0=0 +lonc=0 +alpha=0 +gamma=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,1.411483e-09)
## sf with new: (0,0) -> (0,1.411483e-09)
##
## old: +proj=ortel
## gdal with old: (0,0) -> (0,0)
## new: +proj=ortel +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=ortho
## gdal with old: (0,0) -> (0,0)
## new: +proj=ortho +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=pconic +lat_1=20 +lat_2=60 +lon_0=-40
## gdal with old: (0,0) -> (5280655,1205140)
## new: +proj=pconic +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (5280655,1205140)
## sf with new: (0,0) -> (5280655,1205140)
##
## old: +proj=patterson
## gdal with old: (0,0) -> (0,0)
## new: +proj=patterson +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=poly +lon_0=-40
## gdal with old: (0,0) -> (4452780,0)
## new: +proj=poly +lat_0=0 +lon_0=-40 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (4452780,0)
## sf with new: (0,0) -> (4452780,0)
##
## old: +proj=pop
## gdal with old: (0,0) -> (0,0)
## new: +proj=pop +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=push
## gdal with old: (0,0) -> (0,0)
## new: +proj=push +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=putp1
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp1 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##

```

```

## old: +proj=putp2
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp2 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=putp3
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp3 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=putp3p
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp3p +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=putp4p
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp4p +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=putp5
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp5 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=putp5p
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp5p +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=putp6
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp6 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=putp6p
## gdal with old: (0,0) -> (0,0)
## new: +proj=putp6p +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=qua_aut
## gdal with old: (0,0) -> (0,0)
## new: +proj=qua_aut +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##

```

```

## old: +proj=qsc
## gdal with old: (0,0) -> (0,0)
## new: +proj=qsc +lat_0=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=robin
## gdal with old: (0,0) -> (0,-4.488677e-11)
## new: +proj=robin +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,-4.488677e-11)
## sf      with new: (0,0) -> (0,-4.488677e-11)
##
## old: +proj=rouss
## gdal with old: (0,0) -> (0,0)
## new: +proj=rouss +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=rpoly
## gdal with old: (0,0) -> (0,0)
## new: +proj=rpoly +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=sinu
## gdal with old: (0,0) -> (0,0)
## new: +proj=sinu +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=somerc
## gdal with old: (0,0) -> (0,-7.057413e-10)
## new: +proj=somerc +lat_0=0 +lon_0=0 +k_0=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,-7.057413e-10)
## sf      with new: (0,0) -> (0,-7.057413e-10)
##
## old: +proj=stere
## gdal with old: (0,0) -> (0,0)
## new: +proj=stere +lat_0=0 +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=sterea
## gdal with old: (0,0) -> (0,0)
## new: +proj=sterea +lat_0=0 +lon_0=0 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=gstmerc
## gdal with old: (0,0) -> (-7.057413e-10,-7.057413e-10)
## new: +proj=gstmerc +lat_0=0 +lon_0=0 +k_0=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (-7.057413e-10,-7.057413e-10)
## sf      with new: (0,0) -> (-7.057413e-10,-7.057413e-10)
##

```

```

## old: +proj=tcc
## gdal with old: (0,0) -> (0,0)
## new: +proj=tcc +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=tcea
## gdal with old: (0,0) -> (0,0)
## new: +proj=tcea +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=times
## gdal with old: (0,0) -> (0,0)
## new: +proj=times +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=tissot +lat_1=20 +lat_2=60 +lon_0=-40
## gdal with old: (0,0) -> (5938018,-678110.7)
## new: +proj=tissot +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (5938018,-678110.7)
## sf with new: (0,0) -> (5938018,-678110.7)
##
## old: +proj=tmerc +lon_0=-40 +lat_1=30 +lat_2=60
## gdal with old: (0,0) -> (4869526,0)
## new: +proj=tmerc +lat_0=0 +lon_0=-40 +k=1 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (4869526,0)
## sf with new: (0,0) -> (4869526,0)
##
## old: +proj=tobmerc
## gdal with old: (0,0) -> (0,0)
## new: +proj=tobmerc +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=tpeqd +lat_1=60 +lat_2=65
## gdal with old: (0,0) -> (-6957468,0)
## new: +proj=tpeqd +lat_1=60 +lon_1=0 +lat_2=65 +lon_2=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (-6957468,0)
## sf with new: (0,0) -> (-6957468,0)
##
## old: +proj=tpers +h=1e8
## gdal with old: (0,0) -> (0,0)
## new: +proj=tpers +h=100000000 +datum=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (0,0)
## sf with new: (0,0) -> (0,0)
##
## old: +proj=ups +ellps=WGS84
## gdal with old: (0,0) -> (2e+06,-10637318)
## new: +proj=ups +ellps=WGS84 +units=m +no_defs
## sf with old: (0,0) -> (2e+06,-10637318)
## sf with new: (0,0) -> (2e+06,-10637318)
##

```

```

## old: +proj=urmfps +n=0.9
## gdal with old: (0,0) -> (0,0)
## new: +proj=urmfps +n=0.9 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=utm
## gdal with old: (0,0) -> (166021.4,19995930)
## new: +proj=tmerc +lat_0=0 +lon_0=-183 +k=0.9996 +x_0=500000 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (166021.4,19995930)
## sf      with new: (0,0) -> (166021.4,19995930)
##
## old: +proj=vandg
## gdal with old: (0,0) -> (0,0)
## new: +proj=vandg +R_A +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=vandg2
## gdal with old: (0,0) -> (0,0)
## new: +proj=vandg2 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=vandg3
## gdal with old: (0,0) -> (0,0)
## new: +proj=vandg3 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=vandg4
## gdal with old: (0,0) -> (0,0)
## new: +proj=vandg4 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=vitk1 +lat_1=20 +lat_2=60 +lon_0=-40
## gdal with old: (0,0) -> (5296219,1262193)
## new: +proj=vitk1 +lat_1=20 +lat_2=60 +lon_0=-40 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (5296219,1262193)
## sf      with new: (0,0) -> (5296219,1262193)
##
## old: +proj=wag1
## gdal with old: (0,0) -> (0,0)
## new: +proj=wag1 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=wag2
## gdal with old: (0,0) -> (0,0)
## new: +proj=wag2 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##

```

```

## old: +proj=wag3
## gdal with old: (0,0) -> (0,0)
## new: +proj=wag3 +lat_ts=0 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=wag4
## gdal with old: (0,0) -> (0,0)
## new: +proj=wag4 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=wag5
## gdal with old: (0,0) -> (0,0)
## new: +proj=wag5 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=wag6
## gdal with old: (0,0) -> (0,0)
## new: +proj=wag6 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=wag7
## gdal with old: (0,0) -> (0,0)
## new: +proj=wag7 +lon_0=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=webmerc
## gdal with old: (0,0) -> (0,0)
## new: +proj=merc +a=6378137 +b=6378137 +lat_ts=0 +lon_0=0 +x_0=0 +y_0=0 +k=1 +units=m +nadgrids=@null
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=weren
## gdal with old: (0,0) -> (0,0)
## new: +proj=weren +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=wink1
## gdal with old: (0,0) -> (0,0)
## new: +proj=wink1 +lon_0=0 +lat_ts=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##
## old: +proj=wink2
## gdal with old: (0,0) -> (0,0)
## new: +proj=wink2 +lon_0=0 +lat_1=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
##

```



```
## old: +proj=wintri
## gdal with old: (0,0) -> (0,0)
## new: +proj=wintri +lon_0=0 +lat_1=0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs
## sf      with old: (0,0) -> (0,0)
## sf      with new: (0,0) -> (0,0)
```

References and resources

1. Oce website
2. proj website
3. Jekyll source code for this blog entry: 2020-04-16-map-projection.Rmd