Processing start date: 2018/06/05

Processing end date: 2018/06/08

Corrections: 2019/09/21

Author: Murray Scown

Purpose: documentation of emissions data (EDGAR) processing

Temporary file location:

\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\

All intermediate processing files moved to external hard drive for storage upon completion because of size. Elements (D:) \D1_emissions_data_processing_20180611\EDGAR_processing.gdb

Final files:

\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Data_Processing\EDGAR_20180608.gdb

Name	Units	Description	Columns
mean_rate_co2_eqv	Tonnes CO2-eq per hectare per year	Total emission rate of CO2, CH4, and N2O from all agricultural sources in 2010 in CO2 equivalents. 250 x 250 m grid, projected to WGS84 Web Mercator Auxiliary Sphere, coordinates in meters, extent of NUTS 2 coverage.	NUTS_ID; ZONE_CODE; COUNT (number of 250 x 250 m grid cells); AREA (area in m2 of agricultural grid cell extent); MEAN (calculated value)
mean_rate_nh3	Tonnes NH3 per hectare per year	Emission rate of NH3 from agriculture in 2010. 250 x 250 m grid, projected to WGS84 Web Mercator Auxiliary Sphere, coordinates in meters, extent of NUTS 2 coverage.	NUTS_ID; ZONE_CODE; COUNT (number of 250 x 250 m grid cells); AREA (area in m2 of agricultural grid cell extent); MEAN (calculated value)
mean_rate_nmvoc	Tonnes NMVOC per hectare per year	Emission rate of NMVOC from agriculture in 2010. 250 x 250 m grid, projected to WGS84 Web Mercator Auxiliary Sphere, coordinates in meters, extent of NUTS 2 coverage.	NUTS_ID; ZONE_CODE; COUNT (number of 250 x 250 m grid cells); AREA (area in m2 of agricultural grid cell extent); MEAN (calculated value)
mean_rate_nox	Tonnes NOx per hectare per year	Emission rate of NOx from agriculture in 2010. 250 x 250 m grid, projected to WGS84 Web Mercator Auxiliary Sphere, coordinates in meters, extent of NUTS 2 coverage.	NUTS_ID; ZONE_CODE; COUNT (number of 250 x 250 m grid cells); AREA (area in m2 of agricultural grid cell extent); MEAN (calculated value)
mean_rate_so2	Tonnes SO2 per hectare per year	Emission rate of SO2 from agriculture in 2010. 250 x 250 m grid, projected to WGS84 Web Mercator Auxiliary Sphere, coordinates in meters, extent of NUTS 2 coverage.	NUTS_ID; ZONE_CODE; COUNT (number of 250 x 250 m grid cells); AREA (area in m2 of agricultural grid cell extent); MEAN (calculated value)
mean_rate_pm10	Tonnes PM10 per hectare per year	Emission rate of PM10 from agriculture in 2010. 250 x 250 m grid, projected to WGS84 Web Mercator Auxiliary Sphere, coordinates in meters, extent of NUTS 2 coverage.	NUTS_ID; ZONE_CODE; COUNT (number of 250 x 250 m grid cells); AREA (area in m2 of agricultural grid cell extent); MEAN (calculated value)

mean_rate_pm25	Tonnes PM2.5 per hectare per year	Emission rate of PM2.5 from agriculture in 2010. 250 x 250 m grid, projected to WGS84 Web Mercator Auxiliary Sphere, coordinates in meters, extent of NUTS 2 coverage.	NUTS_ID; ZONE_CODE; COUNT (number of 250 x 250 m grid cells); AREA (area in m2 of agricultural grid cell extent); MEAN (calculated value)

Websites for source data

Global Emissions EDGAR v4.3.1 (January 2016)

http://edgar.jrc.ec.europa.eu/overview.php?v=431

Global Greenhouse Gases Emissions EDGAR v4.3.2

http://edgar.jrc.ec.europa.eu/overview.php?v=432_GHG&SECURE=123

EDGAR methods

http://edgar.jrc.ec.europa.eu/methodology.php

Downloads

Data downloaded from websites below on 5th and 6th June, 2018. All grids downloaded for 2010 as this was the most recent year available for some emissions data.

BC

http://edgar.jrc.ec.europa.eu/gallery.php?release=v431_v2&substance=BC&sector=AGR

v431_v2_REFERENCE_BC_2010_AGR.0.1x0.1

CO

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=61019

v431_v2_REFERENCE_CO_2010_AGR.0.1x0.1

NH3

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=61779

v431_v2_REFERENCE_NH3_2010_AGR.0.1x0.1

NMVOC

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=61907

v431_v2_REFERENCE_NMVOC_bio_2010_AGR.0.1x0.1

NOx

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=61171

v431_v2_REFERENCE_NOx_2010_AGR.0.1x0.1

OC

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=62171

v431_v2_REFERENCE_OC_2010_AGR.0.1x0.1

PM10

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=61323

v431_v2_REFERENCE_PM10_2010_AGR.0.1x0.1

PM2.5

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=61475

v431_v2_REFERENCE_PM2.5_2010_AGR.0.1x0.1

SO2

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=61627

v431_v2_REFERENCE_SO2_2010_AGR.0.1x0.1

CH4 – Enteric fermentation

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=117865

v432_CH4_2010_IPCC_4A.0.1x0.1

CH4 – Manure management

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=118225

v432_CH4_2010_IPCC_4B.0.1x0.1

N2O – Manure management

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=120093

v432_N2O_2010_IPCC_4B.0.1x0.1

CH4 – Agricultural soils

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=117503

v432_CH4_2010_IPCC_4C_4D1_4D2_4D4.0.1x0.1

CO2 – Agricultural soils

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=100317

v432_CO2_excl_short-cycle_org_C_2010_IPCC_4C_4D1_4D2_4D4.0.1x0.1

N2O – Agricultural soils

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=119463

v432_N2O_2010_IPCC_4C_4D1_4D2_4D4.0.1x0.1

N2O – Indirect from agriculture

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=120181

v432_N2O_2010_IPCC_4D3.0.1x0.1

CH4 – Agricultural waste burning

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=117595

v432_CH4_2010_IPCC_4F.0.1x0.1

CO2 – Agricultural waste burning

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=108387

v432_CO2_org_short-cycle_C_2010_IPCC_4F.0.1x0.1

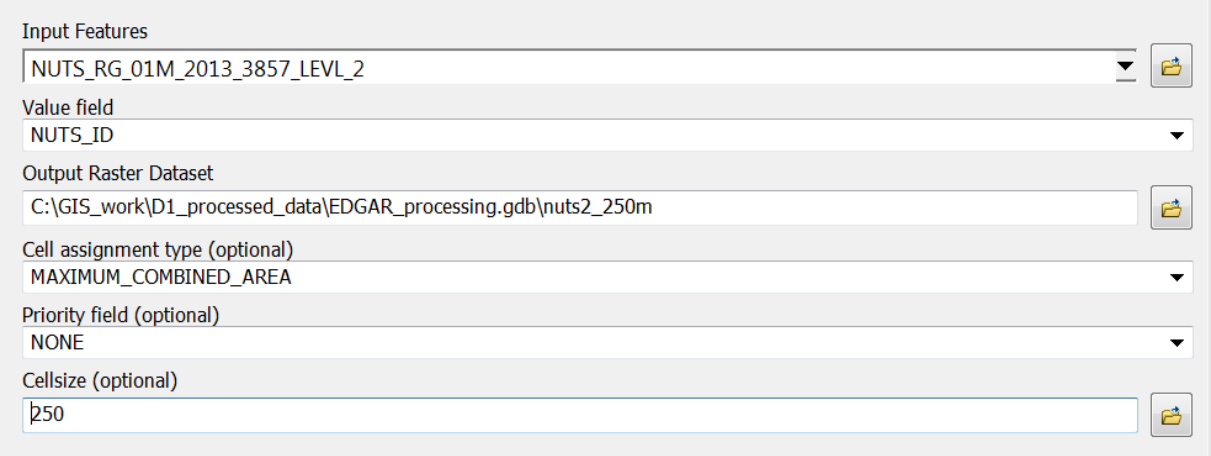
N2O – Agricultural waste burning

http://edgar.jrc.ec.europa.eu/download.php?edgar_dst=119555

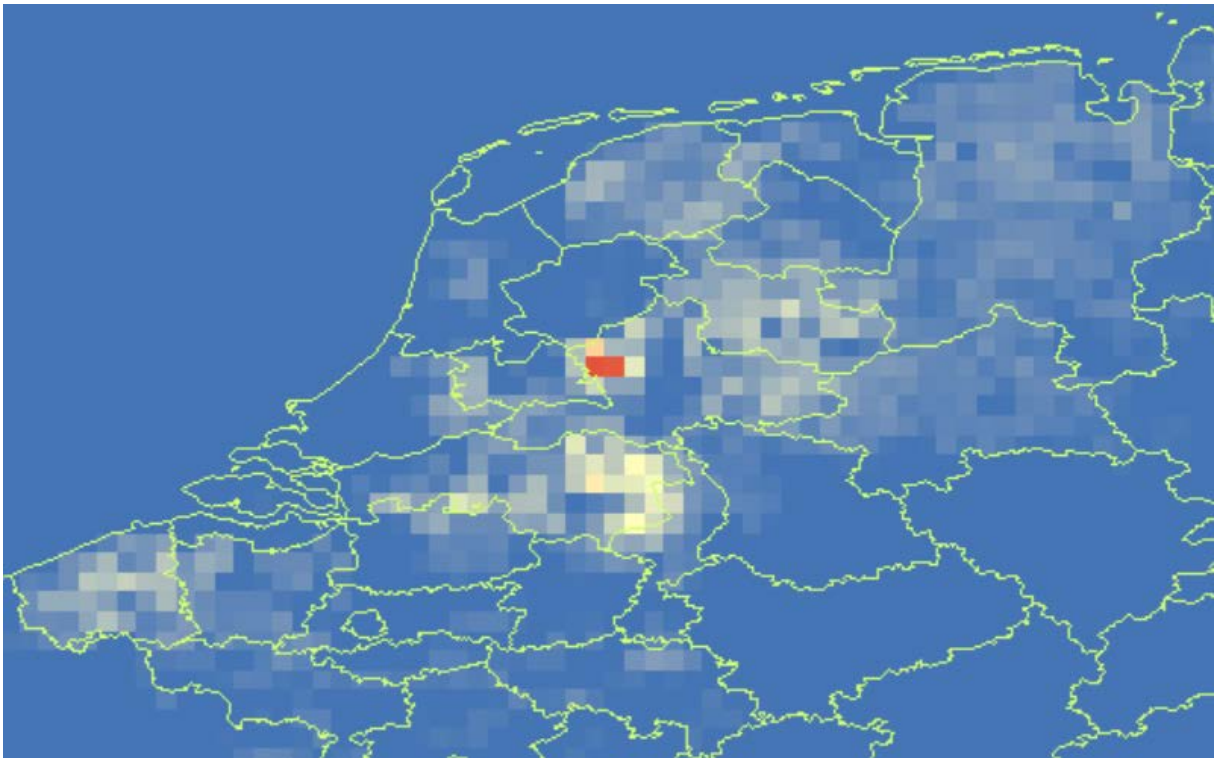
v432_N2O_2010_IPCC_4F.0.1x0.1

NUTS and CORINE processing

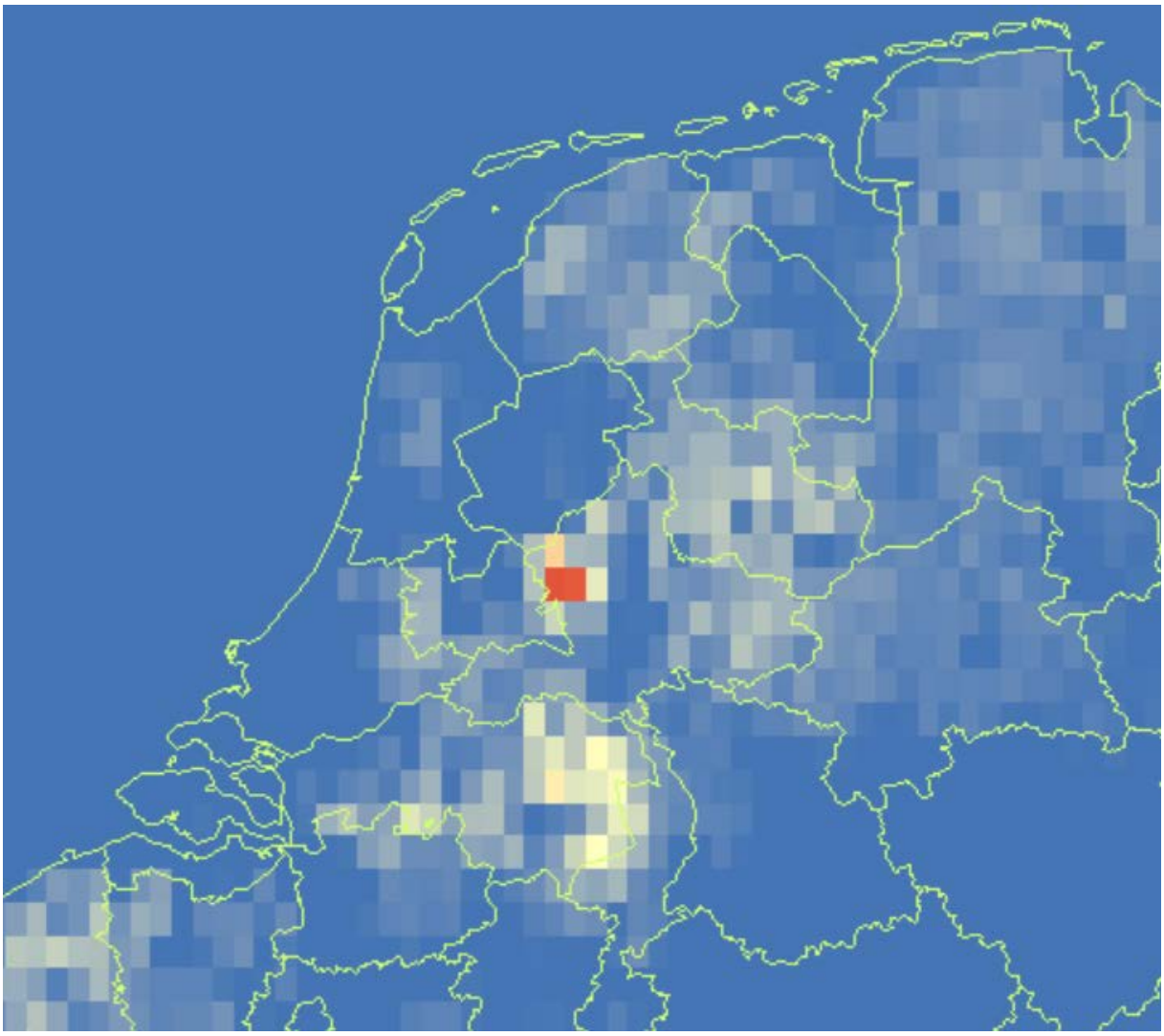
1. Downloaded 2013 NUTS 1:1 million shapefile (http://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts)
2. Converted to a grid of 250m using level 2 version EPSG:3857 (WGS84 Web Mercator Auxiliary Sphere, coordinates in meters). This version was chosen to avoid datum conflict with WGS84 emissions grid and to have a coordinate system in meters.



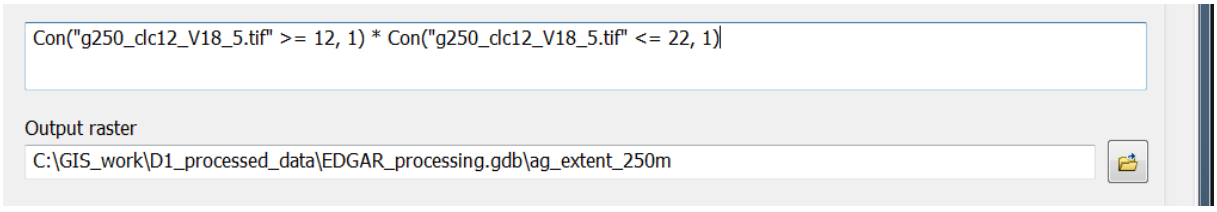
Emissions grid in GCS_WGS_1984 (coordinates in decimal degrees):

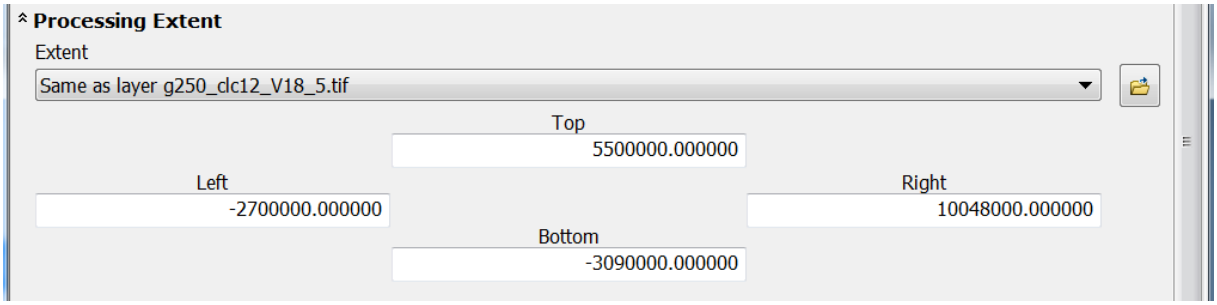


Emissions grid displayed (stretched) in WGS_1984_Web_Mercator_Auxiliary_Sphere (coordinates in meters):

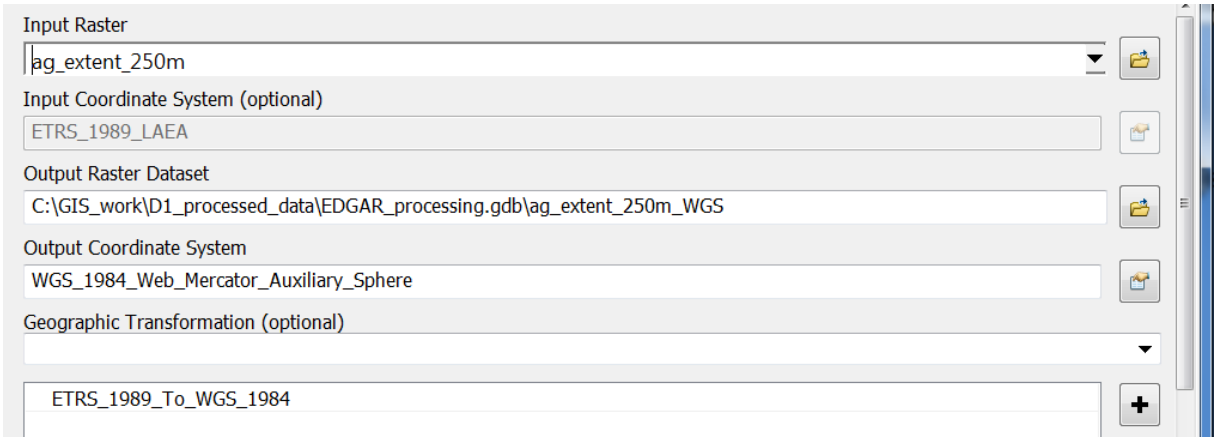


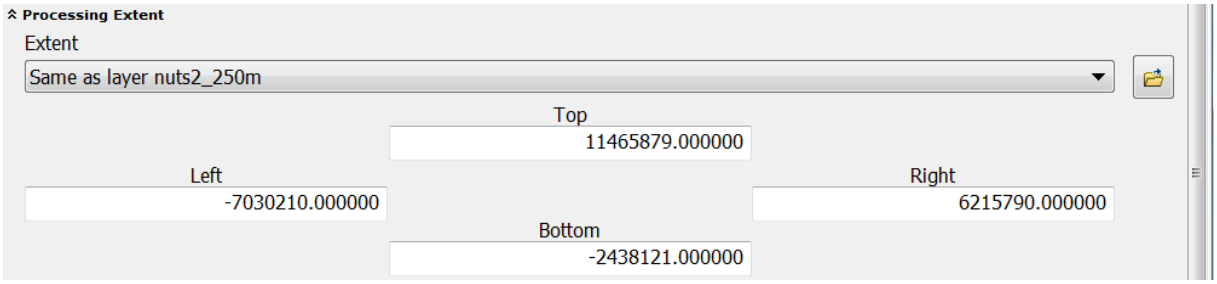
3. Downloaded 2012 CORINE 250 m land cover grid (https://land.copernicus.eu/pan-european/corine-land-cover/clc-2012?tab=download) and created raster of agricultural extent based on every 250 m grid cell classified as agriculture in CORINE (Value between 12 and 22)

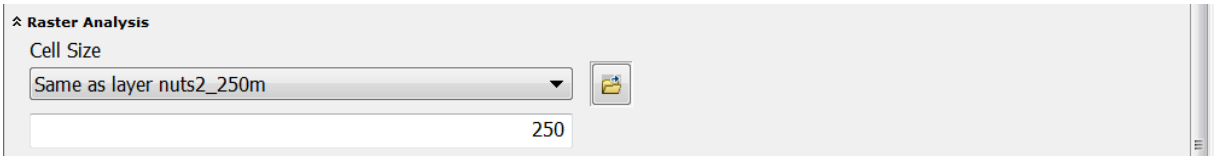




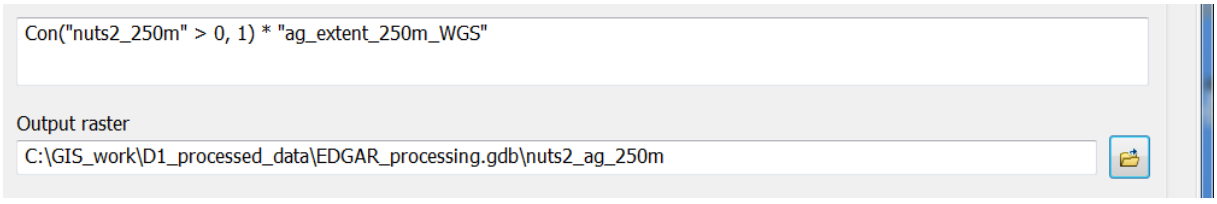
4. Projected agricultural extent raster to WGS84 Web Mercator Auxiliary Sphere, coordinates in meters, with the same extent and cell size as NUTS2 grid

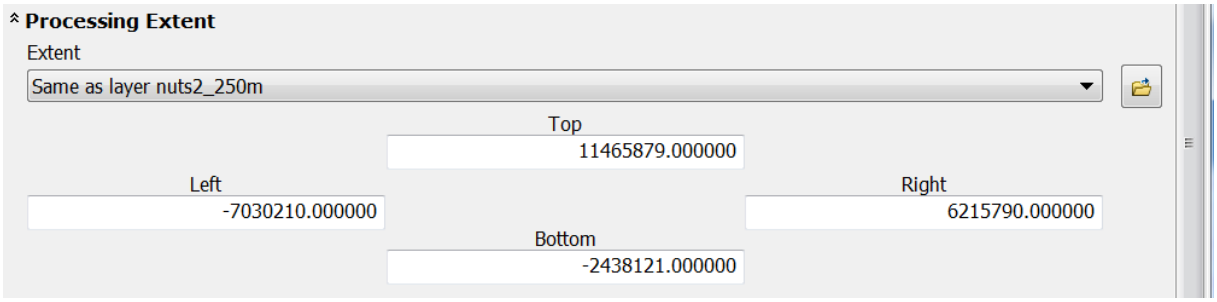


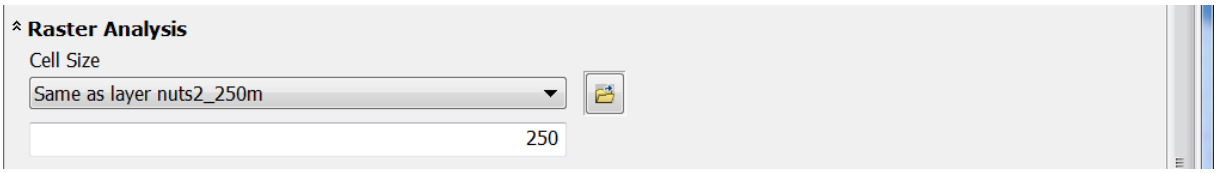




5. Converted agricultural extent raster to agricultural area in km2 within each cell of the NUTS2 regions and aligned with NUTS2 grid

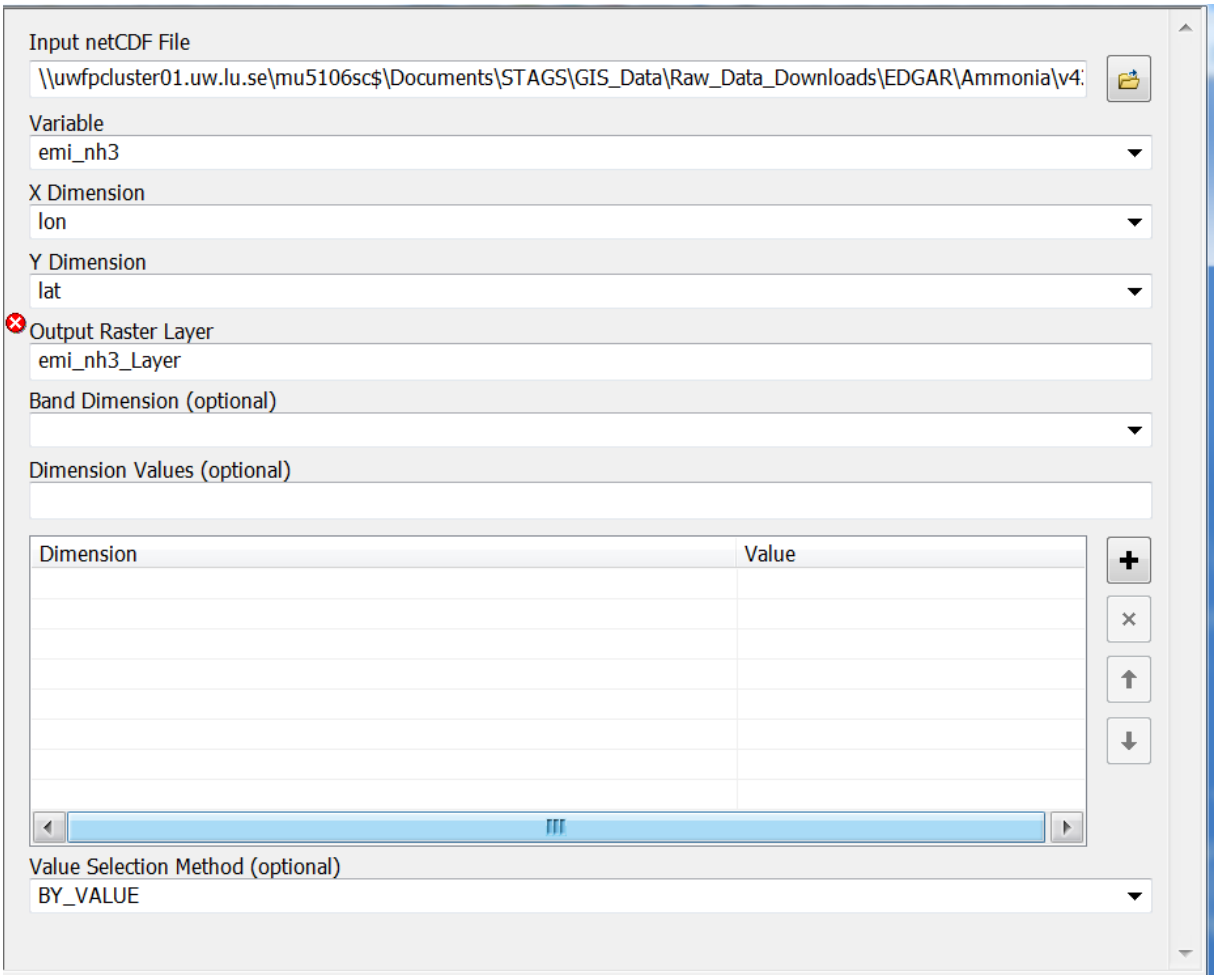




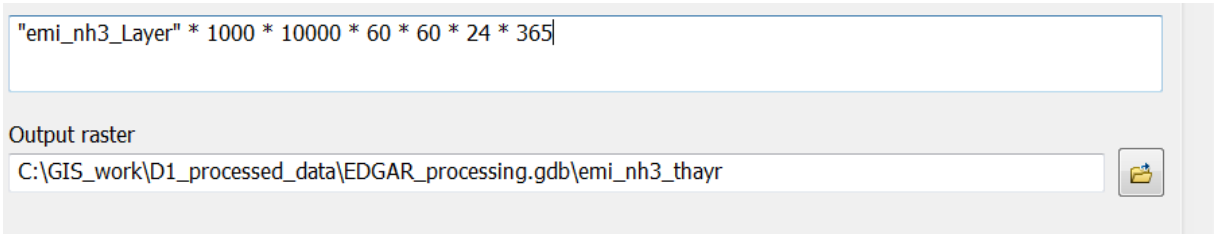

Raster Analysis
Cell Size
Same as layer nuts2_250m
250

Ammonia emissions processing

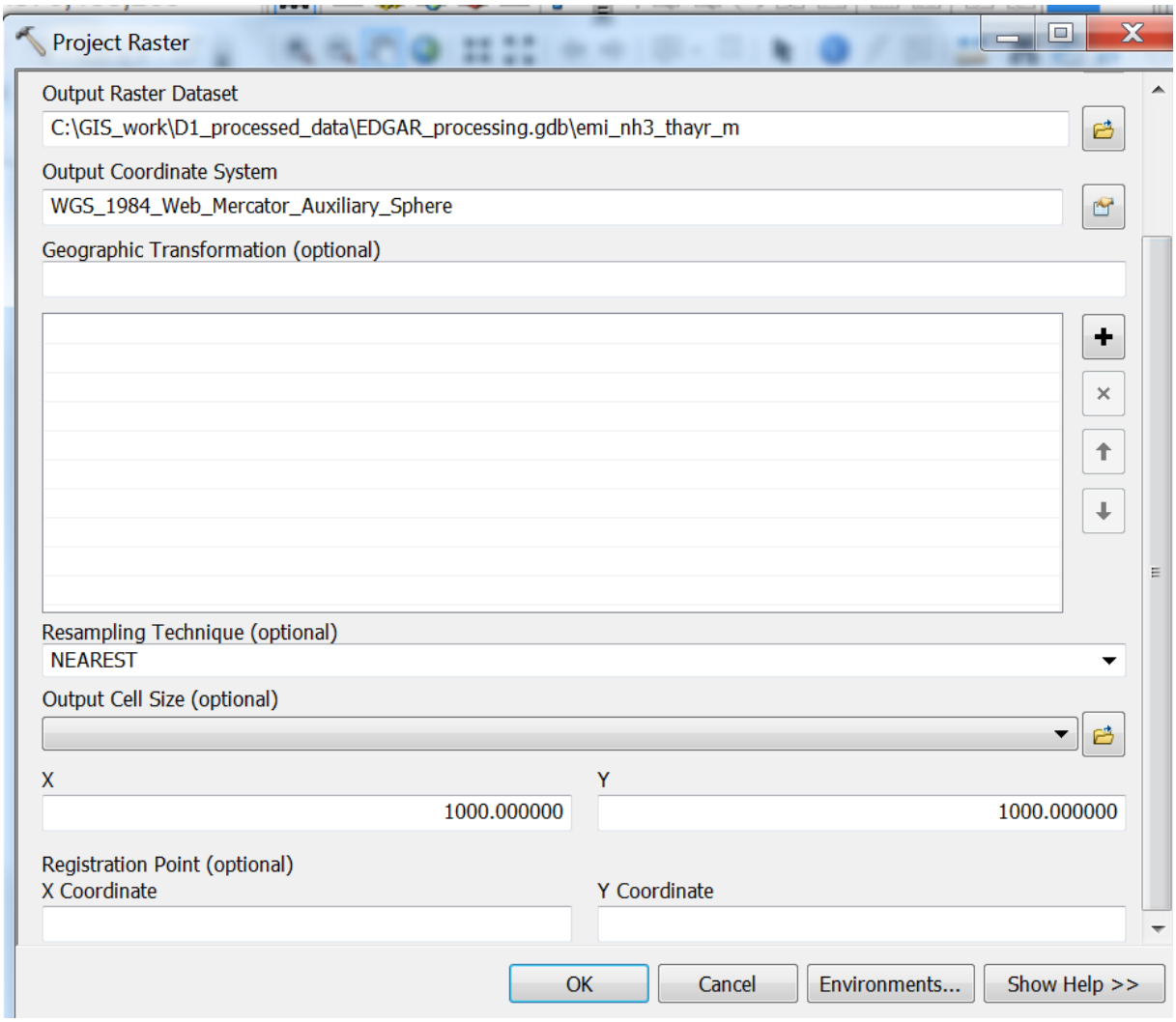
1. Unzipped netCDF file for 2010 ammonia from agriculture to \\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Ammonia\
2. Open ArcMap and added NUTS2 shapefile level 2 version EPSG:4326 (WGS84, coordinates in decimal degrees)
3. Made netCDF raster layer



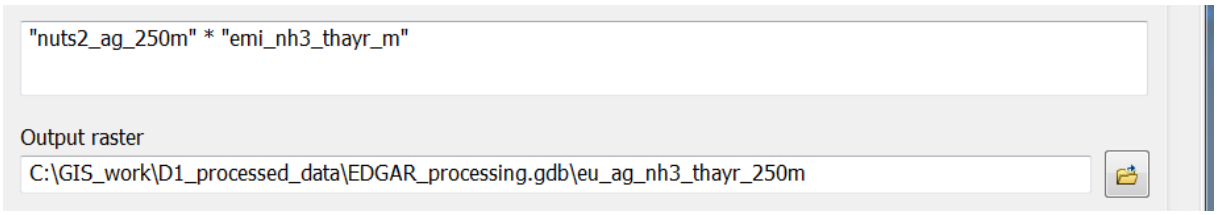
4. Converted from kg/m2/s to ~~t/ha/yr~~ g/ha/yr (365 days in 2010)

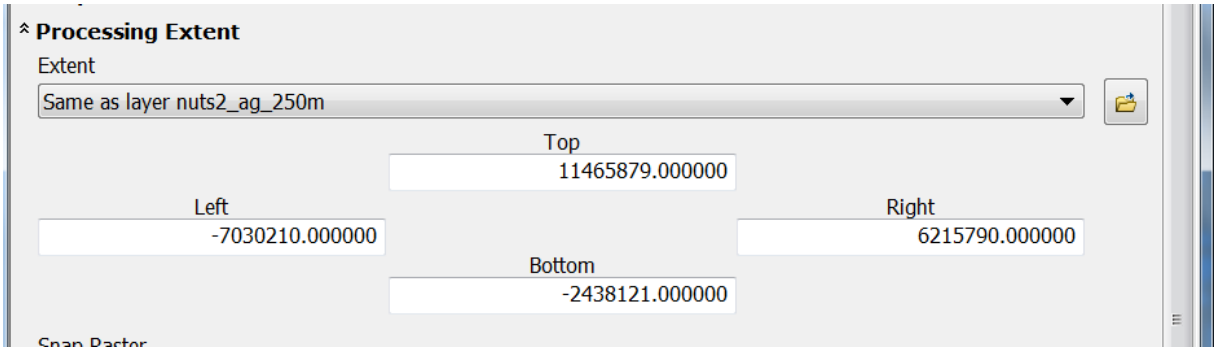


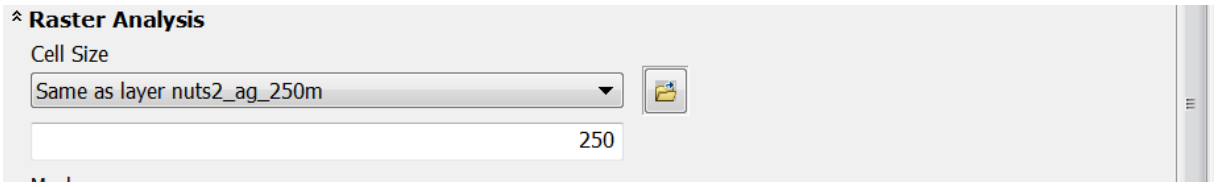
5. Projected raster to 1km grid in WGS_1984_Web_Mercator_Auxiliary_Sphere – trade-off here between resolution and processing time



6. Calculated agricultural emissions for each 250m grid cell of agriculture within NUTS2 regions





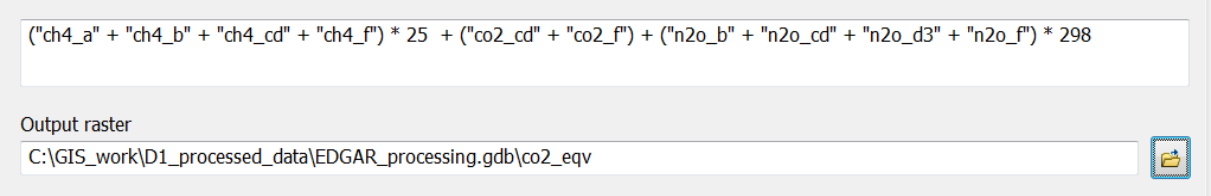

Raster Analysis
Cell Size
Same as layer nuts2_ag_250m
250

Direct GHG emissions processing

1. Unzipped all netCDF files for 2010 direct GHGs from agriculture (CH4, CO2, N2O) to \\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\
2. Made netCDF raster layers

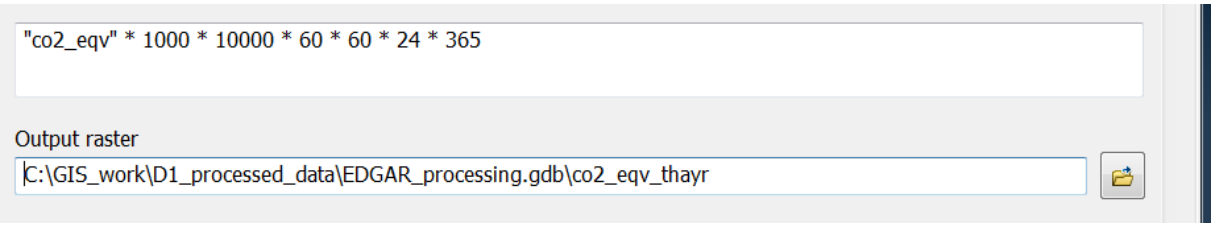
	Input netCDF File	Variable	X Dim	Y Dime	Output Ra
1	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_CH4_2010_IPCC_4A.0.1x0.1.nc	emi_ch4	lon	lat	ch4_a
2	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_CH4_2010_IPCC_4B.0.1x0.1.nc	emi_ch4	lon	lat	ch4_b
3	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_CH4_2010_IPCC_4C_4D1_4D2_4D4.0.1x0.1.nc	emi_ch4	lon	lat	ch4_cd
4	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_CH4_2010_IPCC_4F.0.1x0.1.nc	emi_ch4	lon	lat	ch4_f
5	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_CO2_excl_short-cycle_org_C_2010_IPCC_4C_4D1_4D2_4D4.0.1x0.1.nc	emi_co2	lon	lat	co2_cd
6	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_CO2_org_short-cycle_C_2010_IPCC_4F.0.1x0.1.nc	emi_co2	lon	lat	co2_f
7	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_N2O_2010_IPCC_4B.0.1x0.1.nc	emi_n2o	lon	lat	n2o_b
8	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_N2O_2010_IPCC_4C_4D1_4D2_4D4.0.1x0.1.nc	emi_n2o	lon	lat	n2o_cd
9	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_N2O_2010_IPCC_4D3.0.1x0.1.nc	emi_n2o	lon	lat	n2o_d3
10	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Direct_GHGs\v432_N2O_2010_IPCC_4F.0.1x0.1.nc	emi_n2o	lon	lat	n2o_f

3. Summed emissions in CO2-equivalents based on 100 year global warming potential as outlined here https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html (CO2 = 1; CH4 = 25; N2O = 298)

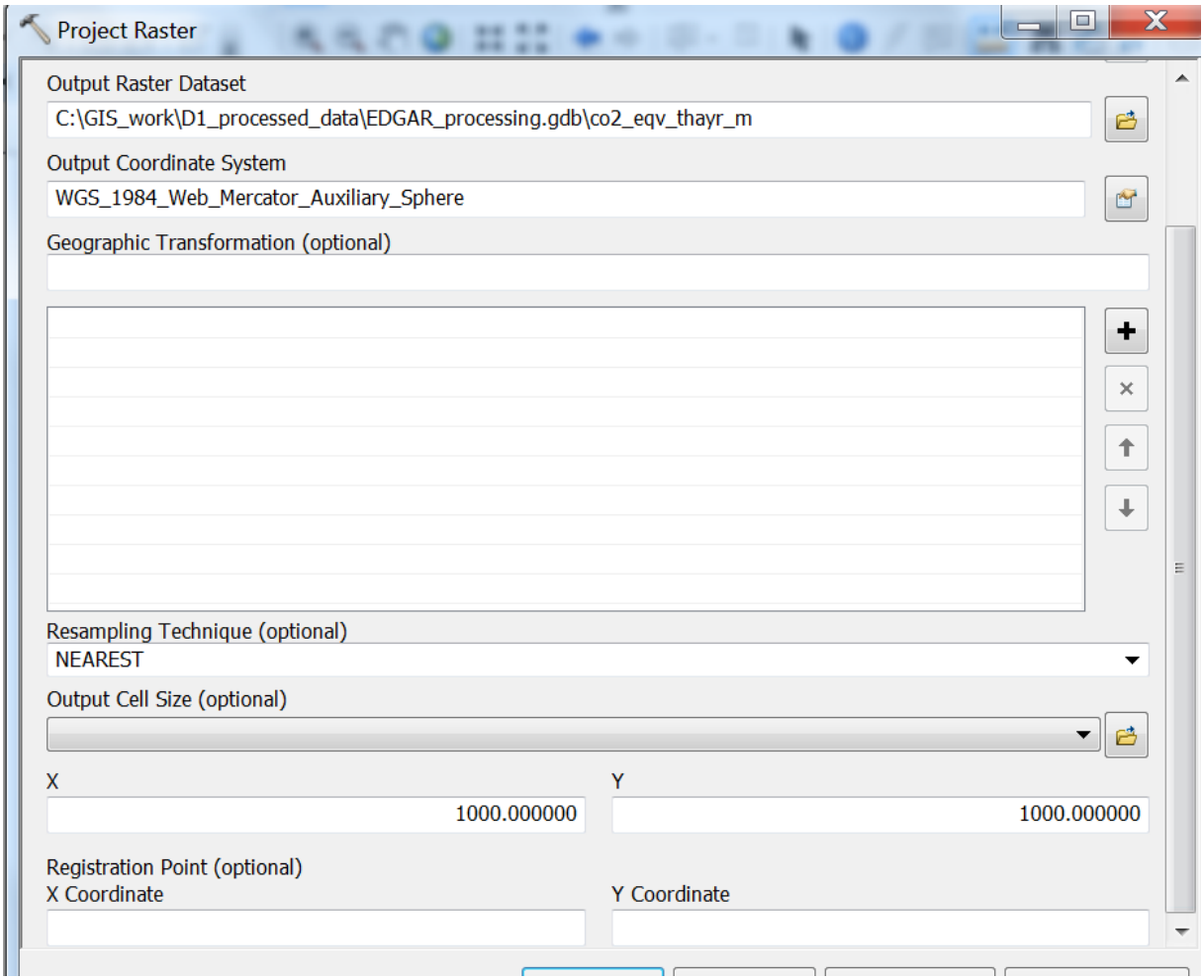


NOTE: units for this raster are kg/m2/s of CO2-eq not of original substance, which is a rate of emissions and not a mass, so the annual rate of emissions for 2010 must be calculated per agricultural area within each NUTS2 region. Additionally, the grid is 0.1 x 0.1 degrees, which is too coarse to work accurately with agricultural extent data from CORINE (100 x 100 m or 250 x 250 m).

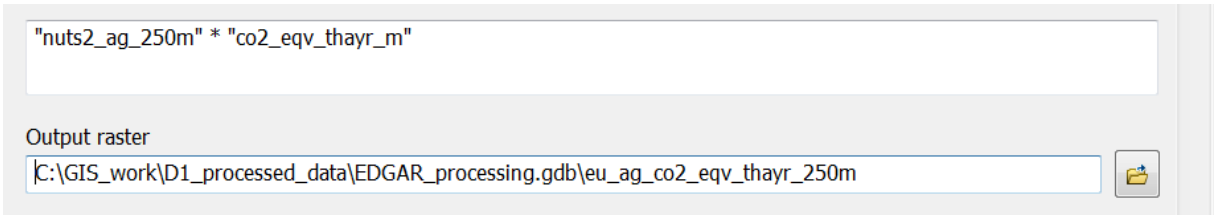
4. Converted from kg/m2/s to ~~t/ha/yr~~ g/ha/yr (365 days in 2010)

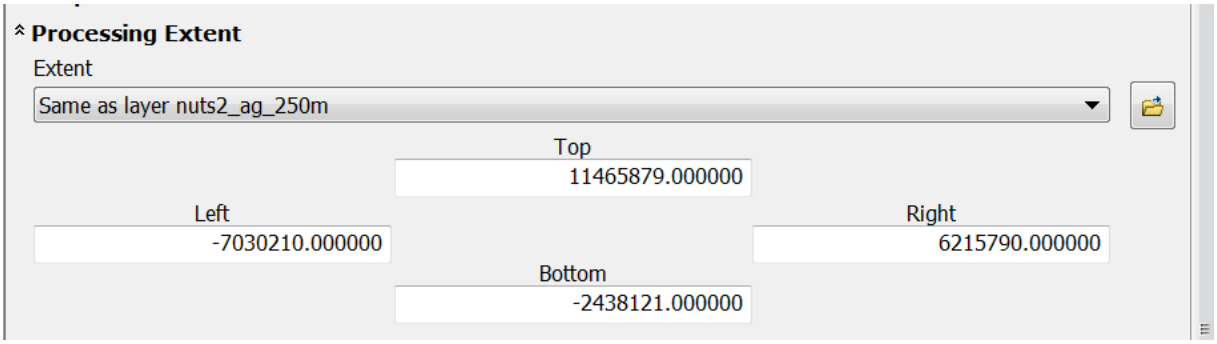


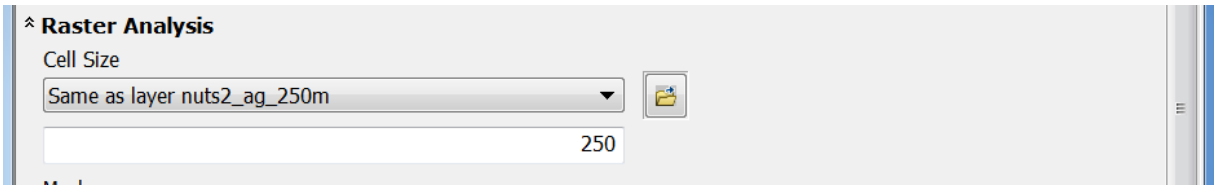
5. Projected emissions raster to 1km grid in WGS_1984_Web_Mercator_Auxiliary_Sphere



6. Calculated agricultural emissions for each 250m grid cell of agriculture within NUTS2 regions






Raster Analysis
Cell Size
Same as layer nuts2_ag_250m
250

Air pollutants processing

Processing 5 of 6 air pollutants (SOx, NOx, NMVOC, PM10, PM2.5) listed by EEA (http://ec.europa.eu/eurostat/cache/metadata/en/env_air_emis_esms.htm), NH3 is the 6th listed by EEA but this is dealt with separately in CAP context indicator C.45.

1. Unzipped all netCDF files for 2010 air pollutants from agriculture to \\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Air_pollutants\
2. Made netCDF raster layers

	Input netCDF File
1	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Air_pollutants\v431_v2_REFERENCE_NMVOC_bio_2010_AGR.0.1x0.1.nc
2	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Air_pollutants\v431_v2_REFERENCE_SO2_2010_AGR.0.1x0.1.nc
3	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Air_pollutants\v431_v2_REFERENCE_PM2.5_2010_AGR.0.1x0.1.nc
4	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Air_pollutants\v431_v2_REFERENCE_PM10_2010_AGR.0.1x0.1.nc
5	\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\EDGAR\Air_pollutants\v431_v2_REFERENCE_NOx_2010_AGR.0.1x0.1.nc

	Variable	X Dim	Y Dim	Output Raster Laye	Band Di	Dimens	Value Selecti
1	emi_nmvoc	lon	lat	emi_nmvoc			BY_VALUE
2	emi_so2	lon	lat	emi_so2			BY_VALUE
3	emi_pm2.5	lon	lat	emi_pm25			BY_VALUE
4	emi_pm10	lon	lat	emi_pm10			BY_VALUE
5	emi_nox	lon	lat	emi_nox			BY_VALUE

3. Converted from kg/m2/s to ~~t/ha/yr~~ g/ha/yr (365 days in 2010)

	Map Algebra expression	Output raster
1	"emi_nmvoc" * 1000 * 10000 * 60 * 60 * 24 * 365	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\nmvoc_thayr
2	"emi_so2" * 1000 * 10000 * 60 * 60 * 24 * 365	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\so2_thayr
3	"emi_pm25" * 1000 * 10000 * 60 * 60 * 24 * 365	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\pm25_thayr
4	"emi_pm10" * 1000 * 10000 * 60 * 60 * 24 * 365	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\pm10_thayr
5	"emi_nox" * 1000 * 10000 * 60 * 60 * 24 * 365	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\nox_thayr

4. Projected emissions rasters to 1km grids in WGS_1984_Web_Mercator_Auxiliary_Sphere

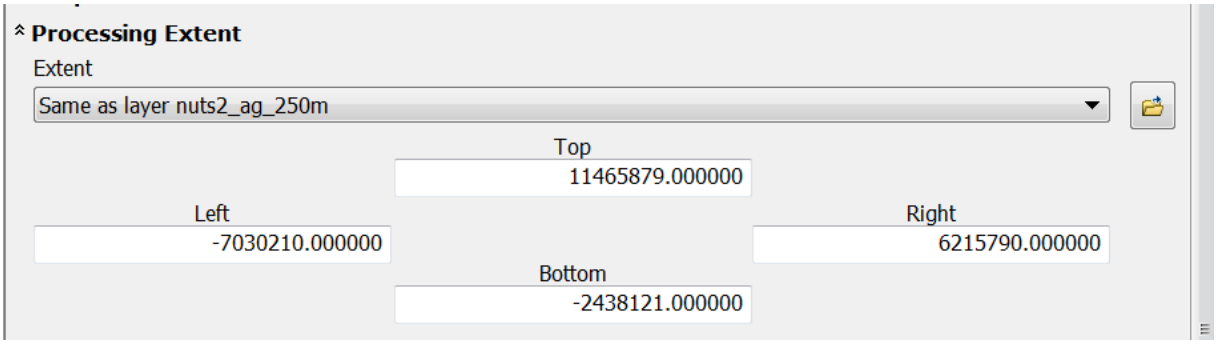
	Input Raster	Output Raster Dataset
1	nox_thayr	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\nox_thayr_m
2	nmvoc_thayr	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\nmvoc_thayr_m
3	so2_thayr	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\so2_thayr_m
4	pm25_thayr	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\pm25_thayr_m
5	pm10_thayr	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\pm10_thayr_m

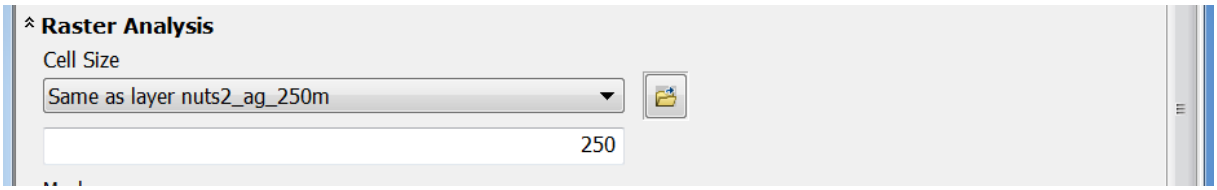
	Output Coordinate System
1	PROJCS['WGS_1984_Web_Mercator_Auxiliary_Sphere',GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]],PR
2	PROJCS['WGS_1984_Web_Mercator_Auxiliary_Sphere',GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]],PR
3	PROJCS['WGS_1984_Web_Mercator_Auxiliary_Sphere',GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]],PR
4	PROJCS['WGS_1984_Web_Mercator_Auxiliary_Sphere',GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]],PR
5	PROJCS['WGS_1984_Web_Mercator_Auxiliary_Sphere',GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]],PR

	Resampling Te	Output Cell S	Geogr	Regi	Input Coordinate System
1	NEAREST	1000 1000			GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]]
2	NEAREST	1000 1000			GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]]
3	NEAREST	1000 1000			GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]]
4	NEAREST	1000 1000			GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]]
5	NEAREST	1000 1000			GEOGCS['GCS_WGS_1984',DATUM['D_WGS_1984',SPHEROID['WGS_1984',6378137.0,298.257223563]],PRIMEM['Greenwich',0.0],UNIT['Degree',0.0174532925199433]]

5. Calculated agricultural emissions for each 250m grid cell of agriculture within NUTS2 regions

	Map Algebra expression	Output raster
1	"nuts2_ag_250m" * "nmvoc_thayr_m"	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\eu_ag_nmvoc_thayr_250m
2	"nuts2_ag_250m" * "nox_thayr_m"	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\eu_ag_nox_thayr_250m
3	"nuts2_ag_250m" * "so2_thayr_m"	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\eu_ag_so2_thayr_250m
4	"nuts2_ag_250m" * "pm25_thayr_m"	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\eu_ag_pm25_thayr_250m
5	"nuts2_ag_250m" * "pm10_thayr_m"	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\eu_ag_pm10_thayr_250m





Final zonal statistics

1. Calculated average emissions rate ~~(t/ha/y)~~ (g/ha/y) from agricultural land per NUTS2 region based on each 250m emissions grid

NOTE: CAP context indicator C.45 has units in kilotons of ammonia per year; GHG emissions and air pollutants are tonnes per year.

	Input raster or fe	Zone field	Input value raster	Output table	Ignore N	Statistics
1	nuts2_250m	NUTS_ID	eu_ag_nmvoc_thayr_250m	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\mean_rate_nmvoc	true	MEAN
2	nuts2_250m	NUTS_ID	eu_ag_nox_thayr_250m	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\mean_rate_nox	true	MEAN
3	nuts2_250m	NUTS_ID	eu_ag_pm10_thayr_250m	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\mean_rate_pm10	true	MEAN
4	nuts2_250m	NUTS_ID	eu_ag_pm25_thayr_250m	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\mean_rate_pm25	true	MEAN
5	nuts2_250m	NUTS_ID	eu_ag_so2_thayr_250m	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\mean_rate_so2	true	MEAN
6	nuts2_250m	NUTS_ID	eu_ag_nh3_thayr_250m	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\mean_rate_nh3	true	MEAN
7	nuts2_250m	NUTS_ID	eu_ag_co2_eqv_thayr_250m	C:\GIS_work\D1_processed_data\EDGAR_processing.gdb\mean_rate_co2_eqv	true	MEAN

Processing start date: 2018/08/21

Processing end date: 2018/08/23

Author: Murray Scown

Purpose: documentation of soils data (ESDAC) processing

Temporary file location:

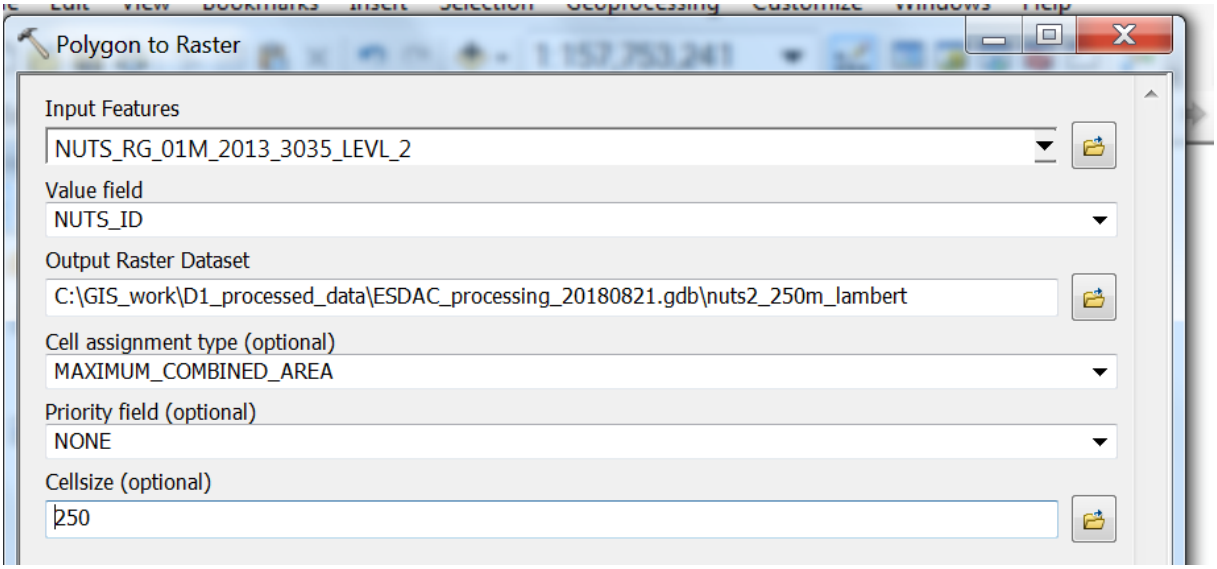
\\uwfpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\ESDAC\

Data requested and obtained from JRC on 2018/08/21:

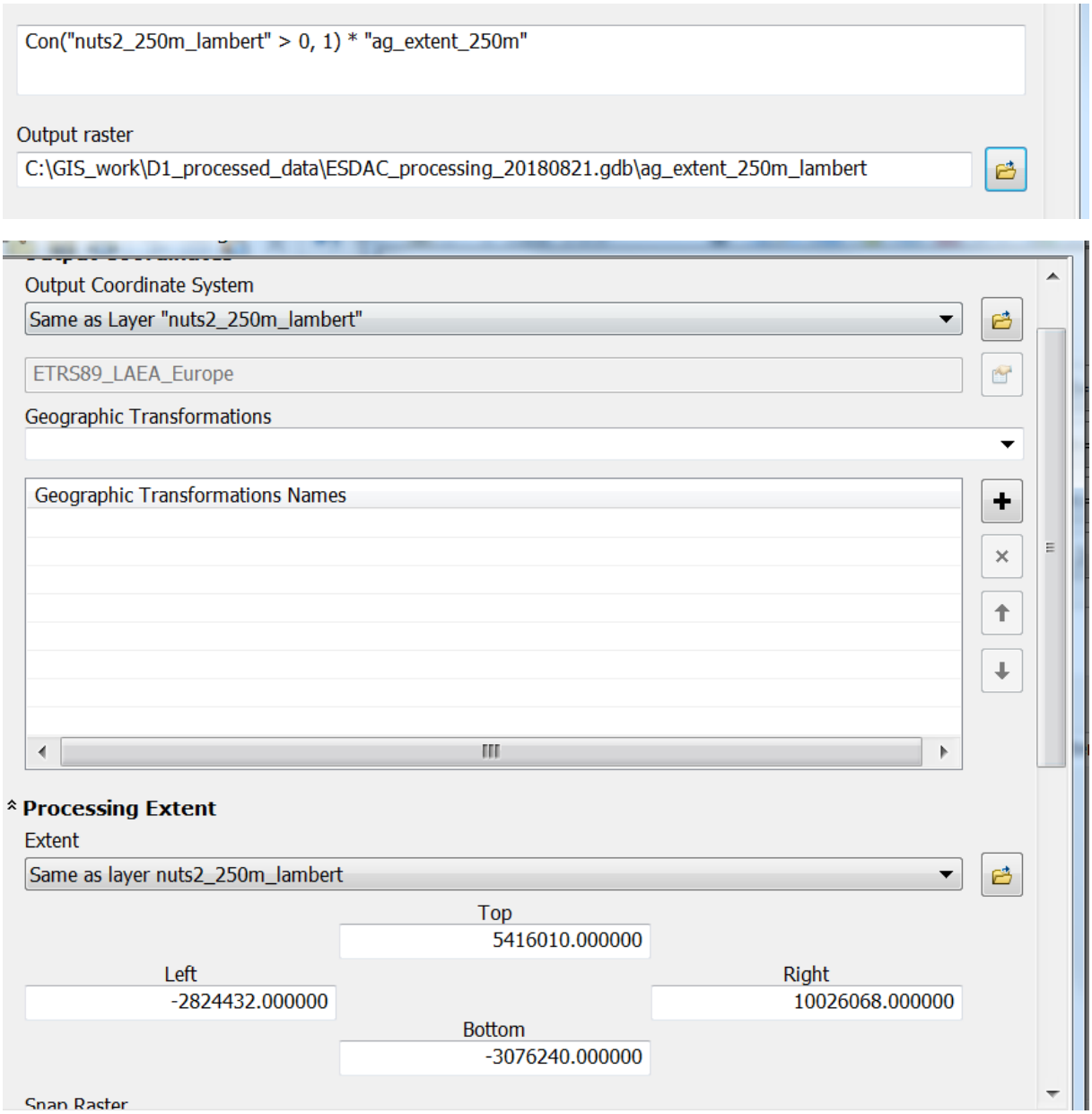
- European Soil Database Derived data
  - https://esdac.jrc.ec.europa.eu/tmp_dataset_access_req_20391
- Cover Management factor (C-factor) for the EU
  - https://esdac.jrc.ec.europa.eu/tmp_dataset_access_req_20392
- Potential threats to soil biodiversity in Europe
  - https://esdac.jrc.ec.europa.eu/tmp_dataset_access_req_20394
- Pan-European SOC stock of agricultural soils
  - https://esdac.jrc.ec.europa.eu/tmp_dataset_access_req_20413

NUTS and Ag extent processing

1. Added 'NUTS_RG_01M_2013_3035_LEVL_2.shp' to ArcMap (EPSG:3035 corresponds to ETRS 1989 in Lambert Azimutal projection with centre in E52N10, coordinates in meters – necessary to avoid datum conflict with soils data)
2. Converted to 250m raster in new file geodatabase 'ESDAC_processing_20180821.gdb'



3. Added 250m ag extent raster from processed CORINE data and calculate ag extent in NUTS2 regions


Con("nuts2_250m_lambert" > 0, 1) * "ag_extent_250m"
Output raster
C:\GIS_work\D1_processed_data\ESDAC_processing_20180821.gdb\ag_extent_250m_lambert
Output Coordinate System
Same as Layer "nuts2_250m_lambert"
ETRS89_LAEA_Europe
Geographic Transformations
Geographic Transformations Names
Processing Extent
Extent
Same as layer nuts2_250m_lambert
Top
5416010.000000
Left
-2824432.000000
Right
10026068.000000
Bottom
-3076240.000000
Snap Raster