gsm.py

BBS needs a local sky model of the observed field. This sky model is stored in a source table created by makesourcedb from a text input file.

The script gsm.py can be used to extract known VLSS sources in the observed field from the GSM and store them in a text file that can directly be used as input by makesourcedb. The parameters for the script need to be given at the command line. The spatial selection can be done using a cone in RA,DEC to be given in J2000.

The sources found will also be extracted from other catalogs (NVSS, WENSS) which are used to fit a spectral index.

By default each source will be its own patch (see makesourcedb), but using the -p option it is possible to create a single patch for the sources found.

The command

```
use MonetDB
```

has to be given first in order to make it work well.

Cone selection

```
gsm.py [-p patchname] filename ra dec radius [vlssFluxCutoff [assocTheta]]
```

-p patchname	if given, all sources will be given the same patch name
filename	the path-name of the file to generate
ra	the RA part of the cone center (degrees)
dec	the DEC part of the cone center (degrees)
radius	the radius of the cone (degrees)
vlssFluxCutoff	minimum flux (Jy) of VLSS sources to use; default = 4
assocTheta	uncertainty in matching (degrees); default = 0.00278 (10 arcsec)

Output file

The generated file is in the makesourcedb format. The following fields are extracted:

- source name
- source type (POINT or GAUSSIAN)
- RA and DEC
- Flux I, Q, U, and V (the latter 3 are currently always 0)
- Major and minor axis and orientation(for gaussian sources)
- Reference frequency
- Spectral index

Example

```
gsm.py /home/username/field1.src 23.175 45.978 1 0.1
```

searches in the WENSS catalog using a cone of 1 degree around (23.175, 45.978) degrees. VLSS sources with a flux >= 0.1 Jy are selected. Implicitly `makesourcedb` will create a patch for each source with the same name as the source. Note it is possible to tell `makesourcedb` to add a prefix and/or suffix to this patch name.

```
gsm.py -p grp1 /home/username/field1.src 23.175 45.978 1
```

searches in the WENSS catalog using a cone of 1 degree around (23.175, 45.978) degrees. VLSS sources with a flux >= 4 Jy are selected. It will create a line defining patch `grp1`, where the patch center is the given RA/DEC and its brightness is the summed fluxes. All sources found will belong to this patch.