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# 2011-09-13 Michael Silberbauer gvisAnnotatedTimeLine creates a Google annotated time line app
# 2011-10-24 Michael Silberbauer apply Deon van Zyl's SET ISOLATION command to access locked tables
# 2011-11-30 Michael Silberbauer cannibalise for creating single-point KML files
# 2011-12-02 Michael Silberbauer add zip kml to kmz
# 2013-07-26 Michael Silberbauer add miniplot to balloon
# 2013-10-01 Michael Silberbauer use standard toTitle function
# plotting microbiological data from the Department of Water Affairs Water Management System
# TODO: implement buttons, <a href="http://www.dwa.gov.za/iwqs/microbio/nmmp.aspx"><button type="button">Micro
# source("C:/data/program/R/NMMP_KML_balloons.R")

#------------------------------------------------------------------
KMLhead <- function(KMLfile, KMLname) { # write the KMLhead to KMLfile
  write(paste(
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n",
    "<kml xmlns=\"http://www.opengis.net/kml/2.2\" xmlns:gx=\"http://www.google.com/kml/ext/2.2\" xmlns:kml=\"http://w
    "<Document>\n",
    "   <name>", KMLname, "</name>\n",
    "   <StyleMap id=\"msn_star\">\n",
    "      <Pair>\n",
    "         <key>normal</key>\n",
    "         <styleUrl>#sn_star</styleUrl>\n",
    "      </Pair>\n",
    "      <Pair>\n",
    "         <key>highlight</key>\n",
    "         <styleUrl>#sh_star</styleUrl>\n",
    "      </Pair>\n",
    "   </StyleMap>\n",
    "   <Style id=\"sn_star\">\n",
    "      <IconStyle>\n",
    "         <color>ff00ffff</color>\n",
    "         <scale>0.6</scale>\n",
    "         <Icon>\n",
    "            <href>http://maps.google.com/mapfiles/kml/shapes/star.png</href>\n",
    "         </Icon>\n",
    "      </IconStyle>\n",
    "      <LabelStyle>\n",
    "         <color>ff7fffff</color>\n",
    "      </LabelStyle>\n",
    "      <ListStyle>\n",
    "      </ListStyle>\n",
    "   </Style>\n",
    "   <Style id=\"sh_star\">\n",
    "      <IconStyle>\n",
    "         <color>ff00ffff</color>\n",
    "         <scale>0.709091</scale>\n",
    "         <Icon>\n",
    "            <href>http://maps.google.com/mapfiles/kml/shapes/star.png</href>\n",
    "         </Icon>\n",
    "      </IconStyle>\n",
    "      <LabelStyle>\n",
    "         <color>ff7fffff</color>\n",
    "      </LabelStyle>\n",
    "      <ListStyle>\n",
    "      </ListStyle>\n",
    "   </Style>",
    sep=""),
      file=KMLfile)
}
```

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#------------------------------------------------------------------
KMLbody <- function(KMLfile, name, desc, lat, lon) { # write the KMLbody and tail to KMLfile
  file.img <- paste("Chart_nmmp_", name, ".png", sep="")
  write(paste(
    "   <Placemark>\n",
    "      <name>", name, "</name>\n",
    "      <description><![CDATA[", desc,
    "<br /><img src=\"http://www.dwa.gov.za/iwqs/microbio/report/nmmp_", name, "_p.png\">",
    "<br /><a href=\"http://www.dwa.gov.za/iwqs/microbio/report/", file.img, "\">",
    "<small>Complete time series plot</small></a>.<br />",
    " <br /><small>", "<a href=\"http://www.dwa.gov.za/iwqs/microbio/nmmp.aspx\">",
    "National Microbial Monitoring Programme</a>.</small>",
    "]]></description>\n",
    "      <LookAt>\n",
    "         <longitude>", lon, "</longitude>\n",
    "         <latitude>", lat, "</latitude>\n",
    "         <altitude>0</altitude>\n",
    "         <range>1000</range>\n",
    "         <tilt>45</tilt>\n",
    "         <heading>0</heading>\n",
    "         <altitudeMode>relativeToGround</altitudeMode>\n",
    "         <gx:altitudeMode>relativeToSeaFloor</gx:altitudeMode>\n",
    "      </LookAt>\n",
    "      <styleUrl>#msn_star</styleUrl>\n",
    "      <Point>\n",
    "         <coordinates>", lon, ", ", lat, ", 0</coordinates>\n",
    "      </Point>\n",
    "   </Placemark>\n",
    "</Document>\n",
    "</kml>",
    sep=""),
      file=KMLfile, append=TRUE)
}
#------------------------------------------------------------------ Main routine
require(RODBC)
db <- "wmsdb"
channel <- odbcConnect(db)
db_unlock <- "set isolation dirty read"
sqlQuery(channel, db_unlock)
if (!exists ("toTitle", mode="function") ) source ("C:/data/program/R/toTitle.R")

#mv <- "E.COLI"
#vars <- sqlQuery(channel, "select * from monitorng_variable")
#varid <- subset(vars$mon_variable_id, grepl(mv, vars$mon_variable_abbr))
# 135=NMMP
nmmpID <- 135
wdir <- "C:/tmp/nmmp/"

q <- paste(
  "SELECT UNIQUE",
  "    ps.mon_program_id, ",
  "    ps.mon_feature_id, ",
  "    mp.point_longitude, ",
  "    mp.point_latitude, ",
  "    mp.feature_name",
  "FROM",
  "    programme_sample ps, ",
  "    monitoring_point mp",
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  "WHERE",
  "    ps.mon_program_id =", nmmpID,
  "AND ",
  "    ps.mon_feature_id = mp.feature_id"
)
sites <- sqlQuery(channel, q)
#featid <- 102626
for (n in 1:nrow(sites)) {
  #for (n in 1:4) {
  featid <- sites$mon_feature_id[n]
  desc <- toTitle(sites$feature_name[n])
  KMLfile <- paste(wdir, "nmmp", featid, ".kml", sep="")
  KMZfile <- gsub("/", "\\\\", paste(wdir, "nmmp", featid, ".kmz", sep="")) # DOS uses \ for /
  ZIPfile <- gsub("/", "\\\\", paste(wdir, "nmmp", featid, ".zip", sep=""))
  dirZIP <- gsub("/", "\\\\", wdir)
  print(paste(n, KMLfile, KMZfile))
  KMLhead(KMLfile, paste("NMMP", featid))
  KMLbody(KMLfile, featid, desc, sites$point_latitude[n], sites$point_longitude[n])
  if (file.exists(KMZfile)) shell(paste("cd", dirZIP, "& del /f ", KMZfile))
  if (file.exists(ZIPfile)) shell(paste("cd", dirZIP, "& del /f ", ZIPfile))
  shell(paste("pkzipc -add", ZIPfile, KMLfile))
  shell(paste("cd", dirZIP, "& ren", basename(ZIPfile), basename(KMZfile)))

}
```