

# SuperMAG IDL Client 1.0

SuperMAG Web Service API IDL Client Documentation

IDL version 8.3 or above required

## ◆ SuperMAGGetInventory()

IDL function that retrieves an array of available stations for a given event.

### Parameters

<b>userid</b>	your supermag user id
<b>yr</b>	start year of event
<b>mo</b>	start month of event
<b>dy</b>	start day of event
<b>hr</b>	start hour of event
<b>mt</b>	start minute of event
<b>sc</b>	start second of event (for now this is ignored as we are only dealing with the 1 minute data)
<b>extent</b>	extent or length of the event in seconds (3600= 1 hour, 86400 = 1 day)
<b>iaar</b>	The array of available stations is returned in iarr
<b>error</b>	(optional) returns an error message back as a string

### Returns

Boolean set to zero on success or 1 on error. If the keyword parameter "error" is provided an error message is returned back as a string.

### Example Usage

```
PRO SuperMAGTestInventory, userid
  s=SuperMAGGetInventory(userid, 2013, 2, 3, 12, 30, 0, 86400, iarr, error=errstr)
  if (s eq 0) then begin
    print, errstr
    stop
  endif
  print, 'Available stations'
  for i=0, n_elements(iarr)-1 do print, iarr[i]
  stop
END
```

## ◆ SuperMAGTimeToYMDHMS()

IDL helper function used convert double precision numbers representing time epochs into the associated set of constituent time elements.

### Parameters

<b>tval</b>	An array of double precision numbers giving the time in seconds since 1970-01-01 0:00UTC (i.e. the times to convert)
<b>yr</b>	tval year
<b>mo</b>	tval month
<b>dy</b>	tval day
<b>hr</b>	tval hour
<b>mt</b>	tval minute
<b>sc</b>	tval second

### Example Usage

```
tval=[1521202124, 1521203460, 1521203520]
SuperMAGTimeToYMDHMS, tval, yr, mo, dy, hr, mt, sc
```

## ◆ SuperMAGGetDataArray()

IDL function that retrieves station magnetometer data for a given event and IAGA station code.

### Parameters

<b>userid</b>	your supermag user id
<b>yr</b>	start year of event
<b>mo</b>	start month of event
<b>dy</b>	start day of event
<b>hr</b>	start hour of event
<b>mt</b>	start minute of event
<b>sc</b>	start second of event (for now this is ignored as we are only dealing with the 1 minute data)
<b>extent</b>	extent or length of the event in seconds (3600= 1 hour, 86400 = 1 day)
<b>station</b>	IAGA code of the requested station
<b>tval</b>	The time of the samples is returned in the array tval. The time array is an array of double precision numbers giving the time since 1970-01-01 0:00UTC (This is a standard representation of time on computer systems).
<b>n</b>	The N vector component is returned in the two dimensional array of length extent/60 specified by n. The second dimension refers to the coordinate system, so 'N[*],0]' contains the component of the vector in the standard NEZ coordinates, N[*],1] contains the geographic mapping of the N vector component.
<b>e</b>	The E vector component is returned in the two dimensional array of length extent/60 specified by e. The second dimension refers to the coordinate system, so 'E[*],0]' contains the component of the vector in the standard NEZ coordinates, E[*],1] contains the geographic mapping of the E vector component.
<b>z</b>	The A vector component is returned in the two dimensional array of length extent/60 specified by z. The second dimension refers to the coordinate system, so 'Z[*],0]' contains the component of the vector in the standard NEZ coordinates, Z[*],1] contains the geographic mapping of the Z vector component.
<b>error</b>	(optional) If supplied, An error message will be returned in the string error
<b>MLT</b>	(optional) If supplied, The MLT/MCOLAT of the station will be returned in the two dimensional array of length extent/60 specified by MLT.
<b>MAG</b>	(optional) If supplied, The Magnetic coordinates of the station will be returned in the two dimensional array of length extent/60 specified by MAG.
<b>GEO</b>	(optional) If supplied, The Geographic coordinates of the station will be returned in the two dimensional array of length extent/60 specified by GEO.
<b>DECL</b>	(optional) If supplied, The Declination from IGRF Model will be returned in the array of length extent/60 specified by DECL.
<b>SZA</b>	(optional) If supplied, The solar zenith angle will be returned in the array of length extent/60 specified by SZA.
<b>DELTA</b>	(optional) If the keyword DELTA is supplied, The baseline NEZ vector start values will be subtracted from the NEZ vector components in the resulting n, e, and z arrays.
<b>BASELINE</b>	(optional) If BASELINE is specified, It must be set to one of three values:

"all" (default)	Subtract both the daily and yearly NEZ baselines
"yearly"	Subtract the yearly NEZ baseline, but do not subtract the daily NEZ baseline
"none"	Do not subtract either the yearly or the daily NEZ baseline

### Returns

Boolean set to zero on success or 1 on error. If the keyword parameter "error" is provided an error message is returned back as a string.

### Example Usage

```

PRO SuperMAGTestDataArray, userid
  s=SuperMAGGetDataArray(userid, 2015, 8, 12, 10, 30, 0, 86400*4, 'THL', tval, n, e, z, error=errstr, MLT=mlt, $
    SZA=sza, MAG=mag, BASELINE='none')
  if (s eq 0) then begin
    print, errstr
    stop
  endif
  if n_elements(tval) eq 0 then begin
    print, 'No Data'
    stop
  endif
  SuperMAGTimeToYMDHMS, tval, yr, mo, dy, hr, mt, sc
  print, 'N (NEZ)=' , n[*], 0], 'E (NEZ)=' , e[*], 0], 'Z (NEZ)=' , z[*], 0]
  print, 'mag=' , mag[0,0], mag[0,1]
  print, 'sza=' , sza
  stop
END

```

## ◆ SuperMAGGetDataStruct()

IDL function that retrieves station magnetometer for a given event and IAGA station code. The data is returned as a single array of structs. This function returns the same data as SuperMAGGetDataArray(), but is intended for "power" users who are comfortable dealing with IDL structures.

### Parameters

<b>userid</b>	your supermag user id
<b>yr</b>	start year of event
<b>mo</b>	start month of event
<b>dy</b>	start day of event
<b>hr</b>	start hour of event
<b>mt</b>	start minute of event
<b>sc</b>	start second of event (for now this is ignored as we are only dealing with the 1 minute data)
<b>extent</b>	extent or length of the event in seconds (3600= 1 hour, 86400 = 1 day)
<b>station</b>	IAGA code of the requested station
<b>magdata</b>	An array of IDL structs, where each struct contains the requested data at a particular event time epoch (e.g. tval,n,e,z,MLT,MAG,GEO,DECL,SZA, see SuperMAGGetDataArray definition above)
<b>error</b>	(optional) If supplied, An error message will be returned in the string error
<b>ALL</b>	(optional) If the keyword "ALL" is supplied, everything is returned (e.g. MLT, MAG, GEO, DECL, and SZA are all returned in magdata)
<b>MLT</b>	(optional) If the keyword "MLT" is supplied, the MLT/MCOLAT of the station will be returned in magdata.
<b>MAG</b>	(optional) If the keyword "MAG" is supplied, the Magnetic coordinates of the station will be returned in magdata.
<b>GEO</b>	(optional) If the keyword "GEO" is supplied, the Geographic coordinates of the station will be returned in magdata.
<b>DECL</b>	(optional) If the keyword "DECL" is supplied, the Declination from IGRF Model will be returned in magdata.
<b>SZA</b>	(optional) If the keyword "SZA" is supplied, the solar zenith angle will be returned in magdata.
<b>DELTA</b>	(optional) If the keyword "DELTA" is supplied, the baseline NEZ vector start values will be subtracted from the NEZ vector components in the resulting n, e, and z arrays.
<b>BASELINE</b>	(optional) If BASELINE is specified, it must be set to one of three values:

"all" (default)	Subtract both the daily and yearly NEZ baselines
"yearly"	Subtract the yearly NEZ baseline, but do not subtract the daily NEZ baseline
"none"	Do not subtract either the yearly or the daily NEZ baseline

### Returns

Boolean set to zero on success or 1 on error. If the keyword parameter "error" is provided an error message is returned back as a string.

### Example Usage

```

PRO SuperMAGTestDataStruct, userid
  s=SuperMAGGetDataStruct(userid, 2015, 8, 12, 10, 30, 0, 3600, 'THL', magdata, error=errstr,$
    /MLT,/SZA,/MAG,/GEO)

  if (s eq 0) then begin
    print, errstr
    stop
  endif
  if n_elements(magdata) eq 0 then begin
    print, 'No data'
    stop
  endif
  tval=magdata[*].tval
  N_NEZ=magdata[*].N.nez
  E_NEZ=magdata[*].E.nez
  Z_NEZ=magdata[*].Z.nez
  MLT=magdata[*].MLT
  MCOLAT=magdata[*].MCOLAT
  MLON=magdata[*].MLON
  MLAT=magdata[*].MLAT
  GLON=magdata[*].GLON
  GLAT=magdata[*].GLAT
  SZA=magdata[*].SZA
  SuperMAGTimeToYMDHMS, tval, yr, mo, dy, hr, mt, sc
  print, 'N (NEZ)=' ,N_NEZ, 'E (NEZ)=' ,E_NEZ, 'Z (NEZ)=' ,Z_NEZ
  stop
END

```

## ◆ SuperMAGGetIndicesArray()

IDL function that retrieves a set of magnetic indices for a given event.

### Parameters

<b>userid</b>	your supermag user id
<b>yr</b>	start year of event
<b>mo</b>	start month of event
<b>dy</b>	start day of event
<b>hr</b>	start hour of event
<b>mt</b>	start minute of event
<b>sc</b>	start second of event (for now this is ignored as we are only dealing with the 1 minute data)
<b>extent</b>	extent or length of the event in seconds (3600= 1 hour, 86400 = 1 day)
<b>tval</b>	The time of the samples is returned in the array tval. The time array is an array of double precision numbers giving the time since 1970-01-01 0:00UTC (This is a standard representation of time on computer systems).
<b>error</b>	(optional) If supplied, An error message will be returned in the string error
<b>SME</b>	(optional) If supplied, the SME indice will be returned in the array specified by SME ( <a href="#">See definition of SME indice</a> )
<b>SML</b>	(optional) If supplied, the SML indice will be returned in the array specified by SML ( <a href="#">See definition of SML indice</a> )
<b>SMU</b>	(optional) If supplied, the SMU indice will be returned in the array specified by SMU ( <a href="#">See definition of SMU indice</a> )
<b>MLAT</b>	(optional) If supplied, the magnetic latitude of the SME indice will be returned in the array specified by MLAT
<b>MLT</b>	(optional) If supplied, the magnetic local time of the SME indice will be returned in the array specified by MLT
<b>GLAT</b>	(optional) If supplied, the geographic latitude of the SME indice will be returned in the array specified by GLAT
<b>GLON</b>	(optional) If supplied, the geographic longitude of the SME indice will be returned in the array specified by GLON
<b>STID</b>	(optional) If supplied, the IAGA station codes of the stations used to compute the SME indices will be returned in the array specified by STID
<b>NUM</b>	(optional) If supplied, the number of stations used to compute SME indices will be returned in the array specified by NUM
<b>SUNSME</b>	(optional) If supplied, the Sunlit SME indice will be returned in the array specified by SUNSME ( <a href="#">See definition of Sunlit SME indice</a> )

<b>SUNSMML</b>	(optional) If supplied, the Sunlit SML indice will be returned in the array specified by SUNSMML ( <a href="#">See definition of Sunlit SML indice</a> )
<b>SUNSMU</b>	(optional) If supplied, the Sunlit SMU indice will be returned in the array specified by SUNSMU ( <a href="#">See definition of Sunlit SMU indice</a> )
<b>SUNMLAT</b>	(optional) If supplied, the magnetic latitude of the Sunlit SME indice will be returned in the array specified by SUNMLAT
<b>SUNMLT</b>	(optional) If supplied, the magnetic local time of the Sunlit SME indice will be returned in the array specified by SUNMLT
<b>SUNGLAT</b>	(optional) If supplied, the geographic latitude of the Sunlit SME indice will be returned in the array specified by SUNGLAT
<b>SUNGLON</b>	(optional) If supplied, the geographic longitude of the Sunlit SME indice will be returned in the array specified by SUNGLON
<b>SUNSTID</b>	(optional) If supplied, the IAGA station codes of the stations used to compute the Sunlit SME indices will be returned in the array specified by SUNSTID
<b>SUNNUM</b>	(optional) If supplied, the number of stations used to compute the Sunlit SME indices will be returned in the array specified by SUNNUM
<b>DARKSME</b>	(optional) If supplied, the Dark SME indice will be returned in the array specified by DARKSME ( <a href="#">See definition of Dark SME indice</a> )
<b>DARKSML</b>	(optional) If supplied, the Dark SML indice will be returned in the array specified by DARKSML ( <a href="#">See definition of Dark SML indice</a> )
<b>DARKSMU</b>	(optional) If supplied, the Dark SMU indice will be returned in the array specified by DARKSMU ( <a href="#">See definition of Dark SMU indice</a> )
<b>DARKMLAT</b>	(optional) If supplied, the magnetic latitude of the Dark SME indice will be returned in the array specified by DARKMLAT
<b>DARKMLT</b>	(optional) If supplied, the magnetic local time of the Dark SME indice will be returned in the array specified by DARKMLT
<b>DARKGLAT</b>	(optional) If supplied, the geographic latitude of the Dark SME indice will be returned in the array specified by DARKGLAT
<b>DARKGLON</b>	(optional) If supplied, the geographic longitude of the Dark SME indice will be returned in the array specified by DARKGLON
<b>DARKSTID</b>	(optional) If supplied, the IAGA station codes of the stations used to compute the Dark SME indices will be returned in the array specified by DARKSTID
<b>DARKNUM</b>	(optional) If supplied, the number of stations used to compute the Dark SME indices will be returned in the array specified by DARKNUM
<b>REGIONALSME</b>	(optional) If supplied, the Regional SME indice will be returned in the array specified by REGIONALSME ( <a href="#">See definition of Regional SME indice</a> )
<b>REGIONALSML</b>	(optional) If supplied, the Regional SML indice will be returned in the array specified by REGIONALSML ( <a href="#">See definition of Regional SML indice</a> )
<b>REGIONALSMU</b>	(optional) If supplied, the Regional SMU indice will be returned in the array specified by REGIONALSMU ( <a href="#">See definition of Regional SMU indice</a> )
<b>REGIONALMLAT</b>	(optional) If supplied, the magnetic latitude of the Regional SME indice will be returned in the array specified by REGIONALMLAT
<b>REGIONALMLT</b>	(optional) If supplied, the magnetic local time of the Regional SME indice will be returned in the array specified by REGIONALMLT
<b>REGIONALGLAT</b>	(optional) If supplied, the geographic latitude of the Regional SME indice will be returned in the array specified by REGIONALGLAT
<b>REGIONALGLON</b>	(optional) If supplied, the geographic longitude of the Regional SME indice will be returned in the array specified by REGIONALGLON
<b>REGIONALSTID</b>	(optional) If supplied, the IAGA station codes of the stations used to compute the Regional SME indices will be returned in the array specified by REGIONALSTID
<b>REGIONALNUM</b>	(optional) If supplied, the number of stations used to compute the Regional SME indices will be returned in the array specified by REGIONALNUM
<b>SMR</b>	(optional) If supplied, the SMR indice will be returned in the array specified by SMR ( <a href="#">See definition of SMR indice</a> )
<b>LTSMR</b>	(optional) If supplied, the SMR LT indice will be returned in the array specified by LTSMR ( <a href="#">See definition of SMR LT indice</a> )
<b>LTNUM</b>	(optional) If supplied, the number of stations used to compute the SMR LTN indice will be returned in the array specified by LTNUM
<b>NSMR</b>	(optional) If supplied, the number of stations used to compute the SMR indices will be returned in the array specified by NSMR
<b>BGSE</b>	(optional) If supplied, the Solar Wind B field (GSE) parameter will be returned in the array specified by BGSE

<b>BGSM</b>	(optional) If supplied, the Solar Wind B field (GSM) parameter will be returned in the array specified by BGSM
<b>VGSE</b>	(optional) If supplied, the Solar Wind V (GSE) parameter will be returned in the array specified by VGSE
<b>VGSM</b>	(optional) If supplied, the Solar Wind V (GSM) parameter will be returned in the array specified by
<b>PDYN</b>	(optional) If supplied, the Solar Wind Dynamic Pressure parameter will be returned in the array specified by PDYN
<b>EPSILON</b>	(optional) If supplied, the Solar Wind $\epsilon$ Parameter parameter will be returned in the array specified by EPSILON
<b>NEWELL</b>	(optional) If supplied, the Solar Wind Newell parameter will be returned in the array specified by NEWELL
<b>CLOCKGSE</b>	(optional) If supplied, the IMF Clock Angle (GSE) parameter will be returned in the array specified by CLOCKGSE
<b>CLOCKGSM</b>	(optional) If supplied, the IMF Clock Angle (GSM) parameter will be returned in the array specified by CLOCKGSM
<b>DENSITY</b>	(optional) If supplied, the Solar Wind Plasma Density parameter will be returned in the array specified by DENSITY

### Returns

Boolean set to zero on success or 1 on error. If the keyword parameter "error" is provided an error message is returned back as a string.

### Example Usage

```

PRO SuperMAGTestIndicesArray, userid
  s=SuperMAGGetIndicesArray(userid, 2012, 2, 3, 12, 30, 0, 3600, tval, error=errstr, $
    SME=sme, SML=sml, SMU=smu, $
    MLAT=mlat, MLT=mlt, GLAT=glat, $
    GLON=glon, STID=stid, NUM=num)
  s=SuperMAGGetIndicesArray(userid, 2012, 2, 3, 12, 30, 0, 3600, tval, error=errstr, $
    SUNSME=sunsme, SUNSML=sunsml, SUNSMU=sunsmu, $
    SUNMLAT=sunmlat, SUNMLT=sunmlt, SUNGLAT=sunglat, $
    SUNGLON=sunglon, SUNSTID=sunstid, SUNNUM=sunnum)
  s=SuperMAGGetIndicesArray(userid, 2012, 2, 3, 12, 30, 0, 3600, tval, error=errstr, $
    DARKSME=darksme, DARKSML=darksml, DARKSMU=darksmu, $
    DARKMLAT=darkmlat, DARKMLT=darkmlt, DARKGLAT=darkglat, $
    DARKGLON=darkglon, DARKSTID=darkstid, DARKNUM=darknum)
  s=SuperMAGGetIndicesArray(userid, 2012, 2, 3, 12, 30, 0, 3600, tval, error=errstr, $
    REGIONALSME=regionalsme, REGIONALSML=regionalsml, REGIONALSMU=regionalsmu, $
    REGIONALMLAT=regionalmlat, REGIONALMLT=regionalmlt, REGIONALGLAT=regionalglat, $
    REGIONALGLON=regionalglon, REGIONALSTID=regionalstid, REGIONALNUM=regionalnum)
  s=SuperMAGGetIndicesArray(userid, 2012, 2, 3, 12, 30, 0, 3600, tval, error=errstr, $
    SMR=smr, LTSMR=ltsmr, LTNUM=ltnum, NSMR=nsmr)
  s=SuperMAGGetIndicesArray(userid, 2012, 2, 3, 12, 30, 0, 3600, tval, error=errstr, $
    BGSE=bgse, BGSM=bgsm, VGSE=vgse, VGSM=vgsm)
  s=SuperMAGGetIndicesArray(userid, 2012, 2, 3, 12, 30, 0, 3600, tval, error=errstr, $
    PDYN=pdyn, EPSILON=epilson, NEWELL=newell, $
    CLOCKGSE=clockgse, CLOCKGSM=clockgsm, DENSITY=density)
  if n_elements(tval) eq 0 then begin
    print, 'No Indices'
    stop
  endif
  SuperMAGTimeToYMDHMS, tval, yr, mo, dy, hr, mt, sc
  stop
END

```

## ◆ SuperMAGGetIndicesStruct()

IDL function that retrieves a set of magnetic indices for a given event. The data is returned as a single array of structs. This function returns the same data as SuperMAGGetIndicesArray(), but is intended for "power" users who are comfortable dealing with IDL structures.

### Parameters

<b>userid</b>	your supermag user id
<b>yr</b>	start year of event
<b>mo</b>	start month of event
<b>dy</b>	start day of event

<b>hr</b>	start hour of event
<b>mt</b>	start minute of event
<b>sc</b>	start second of event (for now this is ignored as we are only dealing with the 1 minute data)
<b>extent</b>	extent or length of the event in seconds (3600= 1 hour, 86400 = 1 day)
<b>inxdata</b>	An array of IDL structs, where each struct contains the requested data at a particular event time epoch
<b>error</b>	(optional) If supplied, An error message will be returned in the string error
<b>INDICESALL</b>	(optional) If the keyword "INDICESALL" is supplied, all indices are returned in inxdata
<b>IMFALL</b>	(optional) If the keyword "IMFALL" is supplied, all IMF parameters are returned in inxdata
<b>SWIALL</b>	(optional) If the keyword "SWIALL" is supplied, all Solar Wind parameters are returned in inxdata
<b>SME</b>	(optional) If the keyword "SME" is supplied, the SME indice will be returned in inxdata ( <a href="#">See definition of SME indice</a> )
<b>SML</b>	(optional) If the keyword "SML" is supplied, the SML indice will be returned in inxdata ( <a href="#">See definition of SML indice</a> )
<b>SMU</b>	(optional) If the keyword "SMU" is supplied, the SMU indice will be returned in inxdata ( <a href="#">See definition of SMU indice</a> )
<b>MLAT</b>	(optional) If the keyword "MLAT" is supplied, the magnetic latitude of the SME indice will be returned in inxdata
<b>MLT</b>	(optional) If the keyword "MLT" is supplied, the magnetic local time of the SME indice will be returned in inxdata
<b>GLAT</b>	(optional) If the keyword "GLAT" is supplied, the geographic latitude of the SME indice will be returned in inxdata
<b>GLON</b>	(optional) If the keyword "GLON" is supplied, the geographic longitude of the SME indice will be returned in inxdata
<b>STID</b>	(optional) If the keyword "STID" is supplied, the IAGA station codes of the stations used to compute the SME indices will be returned in inxdata
<b>NUM</b>	(optional) If the keyword "NUM" is supplied, the number of stations used to compute SME indices will be returned in inxdata
<b>SUNSME</b>	(optional) If the keyword "SUNSME" is supplied, the Sunlit SME indice will be returned in inxdata ( <a href="#">See definition of Sunlit SME indice</a> )
<b>SUNSML</b>	(optional) If the keyword "SUNSML" is supplied, the Sunlit SML indice will be returned in inxdata ( <a href="#">See definition of Sunlit SML indice</a> )
<b>SUNSMU</b>	(optional) If the keyword "SUNSMU" is supplied, the Sunlit SMU indice will be returned in inxdata ( <a href="#">See definition of Sunlit SMU indice</a> )
<b>SUNMLAT</b>	(optional) If the keyword "SUNMLAT" is supplied, the magnetic latitude of the Sunlit SME indice will be returned in inxdata
<b>SUNMLT</b>	(optional) If the keyword "SUNMLT" is supplied, the magnetic local time of the Sunlit SME indice will be returned in inxdata
<b>SUNGLAT</b>	(optional) If the keyword "SUNGLAT" is supplied, the geographic latitude of the Sunlit SME indice will be returned in inxdata
<b>SUNGLON</b>	(optional) If the keyword "SUNGLON" is supplied, the geographic longitude of the Sunlit SME indice will be returned in inxdata
<b>SUNSTID</b>	(optional) If the keyword "SUNSTID" is supplied, the IAGA station codes of the stations used to compute the Sunlit SME indices will be returned in inxdata
<b>SUNNUM</b>	(optional) If the keyword "SUNNUM" is supplied, the number of stations used to compute the Sunlit SME indices will be returned in inxdata
<b>DARKSME</b>	(optional) If the keyword "DARKSME" is supplied, the Dark SME indice will be returned in inxdata ( <a href="#">See definition of Dark SME indice</a> )
<b>DARKSML</b>	(optional) If the keyword "DARKSML" is supplied, the Dark SML indice will be returned in inxdata ( <a href="#">See definition of Dark SML indice</a> )
<b>DARKSMU</b>	(optional) If the keyword "DARKSMU" is supplied, the Dark SMU indice will be returned in inxdata ( <a href="#">See definition of Dark SMU indice</a> )
<b>DARKMLAT</b>	(optional) If the keyword "DARKMLAT" is supplied, the magnetic latitude of the Dark SME indice will be returned in inxdata
<b>DARKMLT</b>	(optional) If the keyword "DARKMLT" is supplied, the magnetic local time of the Dark SME indice will be returned in inxdata
<b>DARKGLAT</b>	(optional) If the keyword "DARKGLAT" is supplied, the geographic latitude of the Dark SME indice will be returned in inxdata
<b>DARKGLON</b>	(optional) If the keyword "DARKGLON" is supplied, the geographic longitude of the Dark SME indice will be returned in inxdata
<b>DARKSTID</b>	(optional) If the keyword "DARKSTID" is supplied, the IAGA station codes of the stations used to compute the Dark SME indices will be returned in inxdata

<b>DARKNUM</b>	(optional) If the keyword "DARKNUM" is supplied, the number of stations used to compute the Dark SME indices will be returned in inxdata
<b>REGIONALSME</b>	(optional) If the keyword "REGIONALSME" is supplied, the Regional SME indice will be returned in inxdata (See definition of <a href="#">Regional SME indice</a> )
<b>REGIONALSML</b>	(optional) If the keyword "REGIONALSML" is supplied, the Regional SML indice will be returned in inxdata (See definition of <a href="#">Regional SML indice</a> )
<b>REGIONALSMU</b>	(optional) If the keyword "REGIONALSMU" is supplied, the Regional SMU indice will be returned in inxdata (See definition of <a href="#">Regional SMU indice</a> )
<b>REGIONALMLAT</b>	(optional) If the keyword "REGIONALMLAT" is supplied, the magnetic latitude of the Regional SME indice will be returned in inxdata
<b>REGIONALMLT</b>	(optional) If the keyword "REGIONALMLT" is supplied, the magnetic local time of the Regional SME indice will be returned in inxdata
<b>REGIONALGLAT</b>	(optional) If the keyword "REGIONALGLAT" is supplied, the geographic latitude of the Regional SME indice will be returned in inxdata
<b>REGIONALGLON</b>	(optional) If the keyword "REGIONALGLON" is supplied, the geographic longitude of the Regional SME indice will be returned in inxdata
<b>REGIONALSTID</b>	(optional) If the keyword "REGIONALSTID" is supplied, the IAGA station codes of the stations used to compute the Regional SME indices will be returned in inxdata
<b>REGIONALNUM</b>	(optional) If the keyword "REGIONALNUM" is supplied, the number of stations used to compute the Regional SME indices will be returned in inxdata
<b>SMR</b>	(optional) If the keyword "SMR" is supplied, the SMR indice will be returned in inxdata (See definition of <a href="#">SMR indice</a> )
<b>LTSMR</b>	(optional) If the keyword "LTSMR" is supplied, the SMR LT indice will be returned in inxdata (See definition of <a href="#">SMR LT indice</a> )
<b>LTNUM</b>	(optional) If the keyword "LTNUM" is supplied, the number of stations used to compute the SMR LTN indice will be returned in inxdata
<b>NSMR</b>	(optional) If the keyword "NSMR" is supplied, the number of stations used to compute the SMR indices will be returned in inxdata
<b>BGSE</b>	(optional) If the keyword "BGSE" is supplied, the Solar Wind B field (GSE) parameter will be returned in inxdata
<b>BGSM</b>	(optional) If the keyword "BGSM" is supplied, the Solar Wind B field (GSM) parameter will be returned in inxdata
<b>VGSE</b>	(optional) If the keyword "VGSE" is supplied, the Solar Wind V (GSE) parameter will be returned in inxdata
<b>VGSM</b>	(optional) If the keyword "VGSM" is supplied, the Solar Wind V (GSM) parameter will be returned in the array specified by
<b>PDYN</b>	(optional) If the keyword "PDYN" is supplied, the Solar Wind Dynamic Pressure parameter will be returned in inxdata
<b>EPSILON</b>	(optional) If the keyword "EPSILON" is supplied, the Solar Wind $\epsilon$ Parameter parameter will be returned in inxdata
<b>NEWELL</b>	(optional) If the keyword "NEWELL" is supplied, the Solar Wind Newell parameter will be returned in inxdata
<b>CLOCKGSE</b>	(optional) If the keyword "CLOCKGSE" is supplied, the IMF Clock Angle (GSE) parameter will be returned in inxdata
<b>CLOCKGSM</b>	(optional) If the keyword "CLOCKGSM" is supplied, the IMF Clock Angle (GSM) parameter will be returned in inxdata
<b>DENSITY</b>	(optional) If the keyword "DENSITY" is supplied, the Solar Wind Plasma Density parameter will be returned in inxdata

### Returns

Boolean set to zero on success or 1 on error. If the keyword parameter "error" is provided an error message is returned back as a string.

### Example Usage



```
PRO SuperMAGTestIndicesStruct, userid
s=SuperMAGGetIndicesStruct(userid, 2012, 2, 3, 12, 30, 0, 3600, inxdata, error=errstr,$
    /INDICESALL,/IMFALL,/SWIALL)

if (s eq 0) then begin
    print, errstr
    stop
endif
if n_elements(inxdata) eq 0 then begin
    print, 'No indices'
    stop
endif
tval=inxdata[*].tval
SME=inxdata[*].SME
SUNSME=inxdata[*].SMES
DARKSME=inxdata[*].SMED
SMR=inxdata[*].SMR
print, 'SME=', SME, 'Sunlit SME=', SUNSME, 'Dark SME =', DARKSME, 'SMR=', SMR
stop
END
```