# PATCH - Patch Information

PATCH provides information describing a portion of an image, a patch, to support exploitation.  In order to achieve the specified resolution in a SAR image, the phase history data must be continuously collected over a calculated flight path distance; this batch of phase history is then processed into one SAR image patch.  A search scene typically consists of many abutting or overlapping patches; each patch of the scene may be treated as an independent image and placed into a separate file, or placed into separate NSIF image segments within a single file; where multiple patches of a scene exactly abut to form a mosaic image, they may all (up to 999) be placed into a single NSIF image segment.  PATCH contains support data pertaining to a single image patch, and one PATCH extension is created for each image patch.  The PATCH_TOT field of the ACFT extension contains the total number of patches contained in the NSIF image segment (and corresponding PATCH extensions contained in the image subheader).  For spot modes, there will normally be only one patch, and the corresponding PATCH may be omitted if all necessary information appears elsewhere in the file.  PATCH extensions are placed in the subheader of the image containing the described patch.

## PATCHB Format Description

The format and description for the user-defined fields of the PATCHB extension is detailed in Table 1.

**TABLE 1  PATCHB – PATCH INFORMATION EXTENSION FORMAT**

| Field | Name | Size | Value Range | Units | Type |
|---|---|---|---|---|---|
| R = Required, C = Conditional, <> = BCS Spaces allowed for entire field ||||||
| CETAG | Unique Extension Identifier | 6 | PATCHB | N/A | R |
| CEL | Length of Entire Tagged Record | 5 | 00121 | bytes | R |
| *The following fields define PATCHB* ||||||
| PAT_NO | Patch Number. Patches are numbered consecutively, starting with 0001, for each image within a file. | 4 | 0001 to 0999 | | R |
| LAST_PAT_FLAG | Last Patch of Search Scene. Flag to indicate that this patch is the last in a search scene. When all patches of a scene are not contained within a single file, PATCH_TOT in ACFTB cannot indicate the total number of patches in the scene; this flag then makes it clear that the scene ends with this patch. 0 = Not End, 1 = End. | 1 | 0 or 1 | | <R> |

| R = Required, C = Conditional, <> = BCS Spaces allowed for entire field | | | | | |
|---|---|---|---|---|---|
| **Field** | **Name** | **Size** | **Value Range** | **Units** | **Type** |
| LNSTRT | Absolute starting line numbers of this patch within an overall image (scene). Provides similar information to ILOC in the image subheader, but in a form more suitable for some operations. Identifies specifically where this patch fits relative to the other N patches comprising an overall scene, whereas relative values in ILOC are referenced to the object to which this patch is attached. | 7 | 0000001 to 9999999 | | R |
| LNSTOP | Absolute ending line numbers of this patch within an overall image (scene). Provides similar information to ILOC in the image subheader, but in a form more suitable for some operations. Identifies specifically where this patch fits relative to the other N patches comprising an overall scene, whereas relative values in ILOC are referenced to the object to which this patch is attached. | 7 | 0000020 to 9999999 | | R |
| AZL | Number of azimuth lines in current patch | 5 | 00020 to99999 | lines | R |
| NVL | Number of valid azimuth lines. | 5 | 00020 to 99999 | lines | <R> |
| FVL | First Valid Line. some Spot modes, the Spot scene does not always completely fill the frame. Therefore, these variables together describe the location of the valid imagery within the azimuth lines transferred. These variables have no meaning in the Search modes. | 3 | 001 to 681 | | <R> |
| NPIXEL | Number of image pixels per line. | 5 | Spot: Search: | pixels | R |
| FVPIX | First Valid Pixel Index Location of the first pixel on a line. This variable, with the number of pixels per line, will define the location of valid data in the image.. | 5 | Spot: Search: | | R |
| FRAME | Spot Frame Number. In Continuous Spot Mode, each image about the same Map Center (a single scene) is called a Frame. The Frame Number starts at 001 and is incremented by 1 for each frame of the scene. Contains spaces for Search and Single Spot modes. | 3 | 001 to 512 | | <R> |

| R = Required, C = Conditional, <> = BCS Spaces allowed for entire field | | | | | |
|---|---|---|---|---|---|
| **Field** | **Name** | **Size** | **Value Range** | **Units** | **Type** |
| UTC | Coordinated Universal Time. Time in seconds (accurate to 0.01 seconds) of the start of the current patch or, in the case of Spot, the current scene or frame. UTC uses a 24-hour clock where a value of 00000.00 corresponds to midnight. | 8 | 00000.00 to 86399.99 | seconds | R |
| SHEAD | Scene Heading. The Scene Heading is a variable that references the scene to True North. In Search scenes, it is the angle from True North clockwise to the Scene Center Line. In Spotlight Scenes, it is the angle from True North clockwise to the Azimuth Vector (projection of the line of sight from the sensor onto a horizontal plane). | 7 | 000.000 to 359.999 | degrees | R |
| GRAVITY | Local Gravity | 7 | 31.0000 to 33.9999 | feet/sec$^2$ | <R> |
| INS_V_NC | Ins Platform Velocity, North  The Inertial Navigator Platform velocity is given in a North, East, Down earth-fixed coordinate system. The measurements are given in units of feet/second. These parameters are valid at the time specified by UTC. | 5 | ±9999 | feet/sec | R |
| INS_V_EC | Ins Platform Velocity, East.  The Inertial Navigator Platform velocity is given in a North, East, Down earth-fixed coordinate system. The measurements are given in units of feet/second. These parameters are valid at the time specified by UTC. | 5 | ±9999 | feet/sec | R |
| INS_V_DC | Ins Platform Velocity, Down.  The Inertial Navigator Platform velocity is given in a North, East, Down earth-fixed coordinate system. The measurements are given in units of feet/second. These parameters are valid at the time specified by UTC. | 5 | ±9999 | feet/sec | R |
| OFFLAT | Geodetic Latitude Offset. The Geodetic Latitude/Longitude Offset is the accumulated latitude/longitude correction currently being used to correct the Inertial Navigation System (INS) aircraft position outputs. The offset is given in seconds of a degree; North and East are positive. | 8 | ±80.0000 | seconds | <R> |

| R = Required, C = Conditional, <> = BCS Spaces allowed for entire field | | | | | |
|---|---|---|---|---|---|
| **Field** | **Name** | **Size** | **Value Range** | **Units** | **Type** |
| OFFLONG | Geodetic Longitude Offset. The Geodetic Latitude/Longitude Offset is the accumulated latitude/longitude correction currently being used to correct the Inertial Navigation System (INS) aircraft position outputs. The offset is given in seconds of a degree; North and East are positive. | 8 | ±80.0000 | seconds | <R> |
| TRACK | Track Heading. The track heading is measured in degrees relative to true North. The measurement is clockwise about the vertical from North to the projection of the aircraft roll axis into the level plane, and is valid at the time specified by UTC. | 3 | 000 to 359 | degrees | R |
| GSWEEP | Ground Sweep Angle. The ground sweep angle is determined by the required azimuth resolution and is the angle over which phase history is collected. The measurements are given in degrees. | 6 | 000.00 to 120.00 | degrees | R |
| SHEAR | Patch Shear Factor. Targets are imaged in the slant plane determined by the Processing Central Reference Point and the SAR velocity vector at mid-array. The conversion from target spacing in the ground plane to target spacing in the slant plane for each patch allows the optimal matching of terrain features in one patch to those in the next. | 8 | 0.850000 to 1.000000 | | <R> |
| BATCH_NO | Consecutive number for coherent files collected during a mission. | 6 | 000001 to 999999 | | <R> |