**2024 Future Analytics Stars Data Dictionary**

This document contains information about each of the datasets that the NBA will provide to the Future Analytics Stars competitors. Each dataset below is accompanied by a small paragraph describing the information contained in the dataset and a description of each of the columns/variables of the dataset.

**Novel Tracking Metric**

**Tracking —** This file contains raw 25 frames-per-second center-of-mass tracking data for 10 NBA games from this season. There are 11 rows for each frame, one for each of the 10 players in the game and the ball. Players are in 2D (X and Y), the ball is in 3D (X, Y, and Z). Only frames when the game clock is running are included (i.e. no data during free throws, in-bounds passes, continuation after the clock stops on a whistle, etc.)

|  |  |
| --- | --- |
| **VARIABLE** | **DESCRIPTION** |
| GameId | The NBA Game ID for a specific game. The 8 digits represent the following: xyyzzzzz. The x represents regular (2) vs. postseason (4). The yy represents the season in which the game took place (e.g. '98' = games for the 1998-99 season; '10' for 2010-2011. The zzzzz is the 5-digit ID for the game number of the season; in the current format of 82 games per team, there are 1230 total NBA games through the season, so zzzzz goes from 00001 – 01230. |
| playerId | The player’s NBA ID, null for the ball. |
| playerName | The player's name, null for the ball. |
| TeamId | The team the corresponding player played for during the game, -1 for the ball. |
| TeamAbbr | Abbreviation of the team, null for the ball. |
| Period | Period (i.e. quarter) that the frame was captured during. |
| WcTime | UTC timestamp of the frame. |
| GcTime | Game clock of the frame, in seconds (i.e. 720 is the start of a quarter, counts down to 0). |
| ScTime | Shot clock of the frame, in seconds. |
| X | X coordinate of the player / ball in the frame, measured in feet. The half court line is at X=0, the right baseline is at X=47, and the left baseline is at X=-47. |
| Y | Y coordinate of the player / ball in the frame, measured in feet. The baskets are at Y=0, the far sideline is at Y=25, and the near sideline is at Y=-25. |
| Z | Z coordinate of the ball in frame, measured in feet, 0 for all players. The floor is Z=0, increases toward the ceiling. |
| gameDate | The date of the game. |

**Events —** This file contains event markings for the same 10 games that the raw tracking is provided for. Joining events and tracking can be done based on gameId and wcTime.

|  |  |
| --- | --- |
| **VARIABLE** | **DESCRIPTION** |
| GameId | The NBA Game ID for a specific game. See tracking data dictionary for more details. |
| eventType | 12 different event types:   * SHOT * JMP — jump ball * TO — turn over * DRIBBLE — logged each time the player dribbles the ball * PASS * FOUL * TOUCH — logged any time a player gains possession of the ball * REB — rebound * OOB — out of bounds * FT — free throw * TMO — time out * VIO — violation |
| playerId | The NBA ID for the player primarily involved in the event (e.g. shooter on SHOT, dribbler on dribble, rebounder on REB, etc.)  Null for all JMP / OOB / TMO, and certain REB (i.e. team rebound) / TO (i.e. shot clock violation) |
| playerName | The player's name. Same null logic as playerId. |
| teamId | The NBA ID for the team primarily involved in the event. Null for all JMP / OOB events. |
| teamAbbr | Abbreviation of the team. Same null logic as teamId. |
| period | Period (i.e. quarter) that the event was captured during. |
| wcTime | UTC timestamp of the event. |
| wcTimeEnd | UTC timestamp of the end of the event, only set on PASS (represents when the receiver caught the pass) and TOUCH (represents when the player stops having possession of the ball). |
| gcTime | Game clock at the time of the event, in seconds (i.e. 720 is the start of a quarter, counts down to 0). |
| scTime | Shot clock at the time of the event. |
| fouledId | The NBA ID for the player who got fouled (only set for FOUL events, null for all other eventTypes). |
| fouledName | Name of player who got fouled (only set for FOUL events, null for all other eventTypes). |
| foulType | Type of foul (only set for FOUL events, null for all other eventTypes). |
| made | Whether or not a shot or free throw was made (only set for SHOT and FT events, null for all other eventTypes). |
| three | Whether or not a shot was a 3-pointer (only set for SHOT events, null for all other eventTypes). |
| fouled | Whether or not there was a foul on a shot (only set for SHOT events, null for all other eventTypes). |
| assisted | Whether or not a shot was assisted (only set for SHOT events, null for all other eventTypes). |
| receiverId | The NBA ID for the player who received a pass (only set for PASS events that reached a player on the same team, null for passes that weren’t received and all other eventTypes). |
| receiverName | Name of the player who received a pass (only set for PASS events that reached a player on the same team, null for passes that weren’t received and all other eventTypes). |
| distance | Different meanings based on the eventType:   * SHOT — distance that the shot was taken from the basket. * REB — distance that the rebound was collected from the basket, null for team rebounds (i.e. rebound goes out of bounds without either team gaining possession). * PASS — distance that the pass traveled, null for passes that weren’t received. |
| dReb | Whether a rebound was a defensive rebound (only set for REB events, null for all other eventTypes). |
| defenderProximity | Distance to nearest defender on shots and rebounds (only set for SHOT and some REB events, null for team rebounds and all other eventTypes). |
| defenderId | NBA ID of nearest defender on shots and rebounds (only set for SHOT and some REB events, null for team rebounds and all other eventTypes). |
| defenderName | Name of nearest defender on shots and rebounds (only set for SHOT and some REB events, null for team rebounds and all other eventTypes). |

**Possessions** — This file contains possessions metadata for the 10 games that event markings and raw tracking were provided for. Joining possessions to events or tracking can be done based on gameId and wcStart / wcEnd and wcTime.

|  |  |
| --- | --- |
| **VARIABLE** | **DESCRIPTION** |
| GameId | The NBA Game ID for a specific game. See tracking data dictionary for more details. |
| period | Period (i.e. quarter) that the event was captured during. |
| possId | NBA ID for the possession. |
| possNum | Order of possession within game, 1 = first possession of the game. |
| teamId | NBA ID of the team on offense during the possession. |
| teamAbbr | Abbreviation of the team. |
| outcome | How the possession ended. 5 different values:   * FGM — field goal made * FGX — field goal missed * TO — turnover * FOUL * OTHER — end of quarter / game where no shot is attempted before time expires. |
| ptsScored | Number of points scored on possession. |
| wcStart | UTC timestamp of start of possession. |
| wcEnd | UTC timestamp of end of possession. |
| gcStart | Game clock at start of possession, in seconds (i.e. 720 is the start of a quarter, counts down to 0). |
| gcEnd | Game clock at the end of event, in seconds (i.e. 720 is the start of a quarter, counts down to 0). |
| basketX | X coordinate of basket offensive is attacking (41.75 is right basket, -41.75 is left basket). |