Table 1

Dataset	Meaning	Dimensions	Data units	Target astro units	Based on corrupted particle properties?
ApertureMeasurements	[Group]				
BlackHoleMass	Total subgrid mass of all black holes in a subhalo	[N]	10^10 h^-1 M_sun	M_sun	Yes
BlackHoleMassAccretionRate	Total (instantaneous) mass accretion rate of all black holes in a subhalo	[N]	[Complex]	M_sun / yr	Yes
CentreOfMass	Centre of mass coordinates of each subhalo	[N, 3]	h^-1 cMpc	pMpc	No
CentreOfPotential	Coordinates of the particle with the lowest potential energy in each subhalo (note: this is in general *not* the particle referred to by IDMostBound)	[N, 3]	h^-1 cMpc	pMpc	No
GasSpin	Total specific angular momentum vector of gas particles.	[N, 3]	h^-1 ?c?Mpc km/s	pMpc km/s	No
GroupNumber	Number of the Friends-of-Friends group to which a subhalo belongs (note: 1-indexed!)	[N]	N/A	N/A	No
HalfMassProjRad	Average projected half-mass radius per particle type	[N, 6]	h^-1 cMpc	pMpc	No
HalfMassRad	3D half-mass radius per particle type	[N, 6]	h^-1 cMpc	pMpc	No
IDMostBound	ID of most bound particle in each subhalo, i.e. with lowest potential + kinetic energy (this is in general not the particle at the position of CentreOfPotential)	[N]	N/A	N/A	No
InertiaTensor	Inertia tensor of ?all? Particles in the subhalo	[N, 9]	h^-3 10^10 M_sun cMpc^2	M_sun pMpc^2	No
InitialMassWeightedBirthZ	Average metallicity of stars, weighted by their initial mass.	[N]	None	None	Yes
InitialMassWeightedStellarAge	Average age of all star particles in a subhalo, weighted by their initial mass	[N]	Gyr	Gyr	Yes
KineticEnergy	Total kinetic energy	[N]	10^10 h^-1 M_sun km^2 s^-2	M_sun km^2 s^-2	No
Mass	Total subhalo mass	[N]	10^10 h^-1 M_sun	M_sun	No
MassTwiceHalfMassRad	Mass of each particle type within its respective half-mass radius	[N, 6]	10^10 h^-1 M_sun	M_sun	No
MassType	Total subhalo mass broken down by particle type	[N, 6]	10^10 h^-1 M_sun	M_sun	No
NSF	[Group]				
Parent	Pointer to parent subhalo	[N]	N/A	N/A	N/A
SF	[Group]				
StarFormationRate	Total star formation rate of all gas particles in a subhalo	[N]	M_sun / yr	M_sun / yr	No
Stars	[Group]				
StellarInitialMass	Total initial mass of all star particles in a subhalo	[N]	10^10 h^-1 M_sun	M_sun	Yes
StellarVelDisp	1D (!) stellar velocity dispersion, (current)-mass-weighted.	[N]	km/s	km/s	No

Dataset	Meaning	Dimensions	Data units	Target astro units	Based on corrupted particle properties?
StellarVelDisp_HalfMassProjRad	1D (!) stellar velocity dispersion, (current)-mass-weighted, of particles within average projected half-mass radius.	[N]	km/s	km/s	No
SubGroupNumber	Relative index of the subhalo within its FoF group (always 0 for centrals).	[N]	N/A	N/A	N/A
SubLength	Total number of subhalo particles	[N]	N/A	N/A	N/A
SubLengthType	Number of subhalo particles broken down by particle type	[N, 6]	N/A	N/A	N/A
SubOffset	Index of first subhalo particle in (full) subfind-ID list	[N]	N/A	N/A	N/A
ThermalEnergy	Total thermal energy of subhalo	[N]	10^10 h^-1 M_sun km^2 s^-2	M_sun km^2 s^-2	No
TotalEnergy	Total energy of particles in subhalo	[N]	10^10 h^-1 M_sun km^2 s^-2	M_sun km^2 s^-2	No
Velocity	?Some sort of velocity for subhalo?	[N, 3]	km/s	km/s	No
Vmax	Maximum idealised circular velocity	[N]	km/s	km/s	No
VmaxRadius	Radius of maximum idealised circular velocity	[N]	h^-1 cMpc	pMpc	No
Complexity levels	0		No recomputation possible		
	1		Simple sum-by-index		
	2		Needs sum-in-aperture		
	1b		Composit sum-by-index		
	1c		Weighted sum-by-index		
	3		More complex		

Dataset	Other known issues?	Test result (CE-5, S-11)	Test result (CE-14, S-29)	Complexity level	Particle property	Other subhalo property
ApertureMeasurements						
BlackHoleMass				1	[5]/BH_Mass	
BlackHoleMassAccretionRate				1	[5]/BH_Mdot	
CentreOfMass				1c	[x]/Coordinates; [x]/Mass	
CentreOfPotential				0		
GasSpin				1b	[x]/Coordinates; [x]/Mass; [x]/Velocity	Velocity
GroupNumber				0		
HalfMassProjRad				3	[x]/Coordinates; [x]/Mass	MassType, CentreOfPotential
HalfMassRad				3	[x]/Coordinates; [x]/Mass	MassType, CentreOfPotential
IDMostBound				0		
InertiaTensor				1b	[x]/Coordinates; [x]/Mass	CentreOfPotential
InitialMassWeightedBirthZ	According to Subfind code, actually seems to calculate average *redshift* of formation…			1bc	[4]/InitialMass; [4]/StellarFormationTime	
InitialMassWeightedStellarAge				1bc	[4]/InitialMass; [4]/StellarFormationTime	
KineticEnergy				1b	[x]/Mass; [x]/Velocity	Velocity
Mass				1	[x]/Mass	
MassTwiceHalfMassRad				2	[x]/Mass	HalfMassRad
MassType				1	[x]/Mass	
NSF					[0]/StarFormationRate	
Parent				0		
SF					[0]/StarFormationRate	
StarFormationRate				1	[0]/StarFormationRate	
Stars						
StellarInitialMass				1	[4]/InitialMass	
StellarVelDisp				1bc	[4]/Velocity; [4]/Mass	Velocity

Dataset	Other known issues?	Test result (CE-5, S-11)	Test result (CE-14, S-29)	Complexity level	Particle property	Other subhalo property
StellarVelDisp_HalfMassProjRad	Wrong according to Claudio			1bc	[4]/Velocity; [4]/Mass	Velocity, HalfMassProjRad, CentreOfPotential
SubGroupNumber				0		
SubLength				0		
SubLengthType				0		
SubOffset				0		
ThermalEnergy				1	???	
TotalEnergy				1	???	
Velocity				1c	[x]/Velocity; [x]/Mass	
Vmax				3	[x]/Coordinates; [x]/Mass	CentreOfPotential
VmaxRadius				3	[x]/Coordinates; [x]/Mass	CentreOfPotential
Complexity levels						

Dataset	Comments		
ApertureMeasurements			
BlackHoleMass			
BlackHoleMassAccretionRate			
CentreOfMass			
CentreOfPotential			
GasSpin			
GroupNumber	FoF index + 1		
HalfMassProjRad	Affected by other bug…?		
HalfMassRad			
IDMostBound			
InertiaTensor			
InitialMassWeightedBirthZ	Should probably clarify that the comment suggests the wrong thing…		
InitialMassWeightedStellarAge			
KineticEnergy			
Mass			
MassTwiceHalfMassRad			
MassType			
NSF			
Parent	Almost certainly affected by other bug, useless		
SF			
StarFormationRate	Note non-standard units		
Stars			
StellarInitialMass			
StellarVelDisp	Affected by other bug…? Reference velocity is subhalo vel?		

Dataset	Comments		
StellarVelDisp_HalfMassProjRad	Affected by other bug…?		
SubGroupNumber			
SubLength			
SubLengthType			
SubOffset			
ThermalEnergy	Calculated as mass * entropy / (gamma-1) * weighted_density^(gamma-1)		
TotalEnergy			
Velocity	Would be good to know what this actually means		
Vmax	Calculated as max(sqrt(GM/r))		
VmaxRadius	Calculated as argmax(sqrt(GM/r))		
Complexity levels			

Table 1

Dataset	Meaning	Dimensions	Data units	Target astro units	Based on corrupted particle properties?
ContaminationCount	Number of contaminating particles	[N]	None	None	No
ContaminationMass	Contaminating mass	[N]	10^10 h^-1 M_sun	M_sun	No
FirstSubhaloID	Index of first subhalo in each FOF group.	[N]	N/A	N/A	No
GroupCentreOfPotential	Coordinates of the particle with the lowest potential energy in each subhalo?? (note: comment says Centre-of-Mass instead…)	[N, 3]	h^-1 cMpc	pMpc	No
GroupLength	Number of particles in each FOF group.	[N]	None	None	No
GroupMass	Total mass of FOF group.	[N]	10^10 h^-1 M_sun	M_sun	No
GroupOffset	Index of first FOF particle in (full) subfind-ID list	[N]	N/A	N/A	No
Group_M_Crit200	Total mass within R200_crit	[N]	10^10 h^-1 M_sun	M_sun	No
Group_M_Crit2500	Total mass within R2500_crit	[N]	10^10 h^-1 M_sun	M_sun	No
Group_M_Crit500	Total mass within R500_crit	[N]	10^10 h^-1 M_sun	M_sun	No
Group_M_Mean200	Total mass within R200_mean	[N]	10^10 h^-1 M_sun	M_sun	No
Group_M_Mean2500	Total mass within R2500_mean	[N]	10^10 h^-1 M_sun	M_sun	No
Group_M_Mean500	Total mass within R500_mean	[N]	10^10 h^-1 M_sun	M_sun	No
Group_M_TopHat200	Total mass within R200_tophat	[N]	10^10 h^-1 M_sun	M_sun	No
Group_R_Crit200	Radius within which the density equals 200 times the critical density.	[N]	h^-1 cMpc	pMpc	No
Group_R_Crit2500	Radius within which the density equals 2500 times the critical density.	[N]	h^-1 cMpc	pMpc	No
Group_R_Crit500	Radius within which the density equals 500 times the critical density.	[N]	h^-1 cMpc	pMpc	No
Group_R_Mean200	Radius within which the density equals 200 times the mean density.	[N]	h^-1 cMpc	pMpc	No
Group_R_Mean2500	Radius within which the density equals 2500 times the mean density.	[N]	h^-1 cMpc	pMpc	No
Group_R_Mean500	Radius within which the density equals 500 times the mean density.	[N]	h^-1 cMpc	pMpc	No
Group_R_TopHat200	Radius within which the density equals x_Vir times the mean density (x_Vir = 18pi^2 + 82 * (1-Omega) - 39 (1-Omega)^2 as in Bryan & Norman 98	[N]	h^-1 cMpc	pMpc	No
NumOfSubhalos	Total number of subhaloes in each FOF group	[N]	N/A	N/A	No
Complexity levels	0		No recomputation possible		
	1		Simple sum-by-index		
	2		Needs sum-in-aperture		
	1b		Composit sum-by-index		
	1c		Weighted sum-by-index		
	3		More complex		

Dataset	Other known issues?	Test result (CE-5, S-11)	Test result (CE-14, S-29)	Complexity level	Particle property	Other subhalo property
ContaminationCount						
ContaminationMass						
FirstSubhaloID						
GroupCentreOfPotential	Comment contradicts name.					
GroupLength						
GroupMass						
GroupOffset						
Group_M_Crit200						
Group_M_Crit2500						
Group_M_Crit500						
Group_M_Mean200						
Group_M_Mean2500						
Group_M_Mean500						
Group_M_TopHat200	Name is misleading.					
Group_R_Crit200						
Group_R_Crit2500						
Group_R_Crit500						
Group_R_Mean200						
Group_R_Mean2500						
Group_R_Mean500						
Group_R_TopHat200	Comment gives wrong definition of average density inside this radius; name is misleading.					
NumOfSubhalos						
Complexity levels						

Dataset	Comments		
ContaminationCount			
ContaminationMass			
FirstSubhaloID			
GroupCentreOfPotential			
GroupLength			
GroupMass	FoF index + 1		
GroupOffset	Affected by other bug…?		
Group_M_Crit200			
Group_M_Crit2500			
Group_M_Crit500			
Group_M_Mean200			
Group_M_Mean2500			
Group_M_Mean500			
Group_M_TopHat200			
Group_R_Crit200			
Group_R_Crit2500			
Group_R_Crit500			
Group_R_Mean200			
Group_R_Mean2500			
Group_R_Mean500			
Group_R_TopHat200			
NumOfSubhalos			
Complexity levels			

Table 1

Dataset	Meaning	Dimensions	Units	Target astro units	Based on corrupted particle properties?
Mass	Total mass within series of apertures, broken down by particle type	[N, 6]	10^10 h^-1 M_sun	M_sun	No
SFR	Total star formation rate within series of apertures	[N]	M_sun/yr	M_sun / yr	No
VelDisp	1D velocity dispersion within series of apertures	[N]	km/s	km/s	No
Issue level meanings	0		unaffected		
	1		Needs sum-of-elements		
	2		Needs sum-in-aperture		
	3		More complex		

Dataset	Other known issues	Test result (CE-5/ S11)	Test result (CE-14/ S29)	Complexity level	Particle property	Other subhalo property
Mass				2	[x]/Mass	CentreOfPotential
SFR				2	[0]/ StarFormationRate	CentreOfPotential
VelDisp				2bc	[x]/Mass; [x]/ Velocity	CentreOfPotential, Velocity
Issue level meanings						

Dataset	Comments		
Mass			
SFR			
VelDisp	Unclear whether affected by other bug		
Issue level meanings			

Table 1

Dataset [*: not for stars]	Meaning	Dimensions	Data units	Target astro units	Based on corrupted particle properties?
[Smoothed]ElementAbundance/[X]	Relative abundance of element [X] in non-star-forming gas	[N]	None	None	Yes (for stars)
IronFromSNIa	Fraction of NSF gas mass contributed by iron from SN Ia.	[N]	None	None	Yes (for stars)
IronFromSNIaSmoothed	Fraction of NSF gas mass contributed by smoothed iron from SN Ia.	[N]	None	None	Yes (for stars)
KineticEnergy	Total kinetic energy in NSF gas.	[N]	10^10 h^-1 M_sun km^2 s^-2	M_sun km^2 s^-2	No
Mass	Total subhalo mass in NSF gas.	[N]	10^10 h^-1 M_sun	M_sun	No
MassFromAGB	Total mass from AGB outflows	[N]	10^10 h^-1 M_sun	M_sun	Yes (for stars)
MassFromSNII	Total mass from SNII	[N]	10^10 h^-1 M_sun	M_sun	Yes (for stars)
MassFromSNIa	Total mass from SNIa	[N]	10^10 h^-1 M_sun	M_sun	Yes (for stars)
MassWeightedEntropy*	Mass weighted entropy of NSF gas.	[N]	???	???	No
MassWeightedPotential	Mass weighted potential of NSF gas.	[N]	km^2 s^-2	km^2 s^-2	No
MassWeightedTemperature*	Mass weighted temperature of NSF gas.	[N]	K	K	No
Metallicity	Metal fraction of NSF gas	[N]	None	None	Yes (for stars)
MetalsFromAGB	Total mass in metals from AGB	[N]	10^10 h^-1 M_sun	M_sun	Yes (for stars)
MetalsFromSNII	Total mass in metals from SN II	[N]	10^10 h^-1 M_sun	M_sun	Yes (for stars)
MetalsFromSNIa	Total mass in metals from SN Ia	[N]	10^10 h^-1 M_sun	M_sun	Yes (for stars)
SmoothedMetallicity	Smoothed metal fraction of NSF gas	[N]	None	None	Yes (for stars)
Spin	Total specific angular momentum vector of NSF gas particles.	[N, 3]	h^-1 cMpc km/s	pMpc km/s	No
ThermalEnergy*	Total thermal energy of subhalo NSF particles	[N]	10^10 h^-1 M_sun km^2 s^-2	M_sun km^2 s^-2	No
TotalEnergy	Total energy of NSF particles in subhalo	[N]	10^10 h^-1 M_sun km^2 s^-2	M_sun km^2 s^-2	No

Dataset [*: not for stars]	Meaning	Dimensions	Data units	Target astro units	Based on corrupted particle properties?
Issue level meanings	0		unaffected		
	1		Needs sum-of-elements		
	2		Needs sum-in-aperture		
	3		More complex		

Dataset [*: not for stars]	Other known issues	Test result (CE-5/ S11)	Test result (CE-14/ S29)	Complexity level	Particle property (in addition to [0]/ StarFormationRate)
[Smoothed]ElementAbundance/[X]				1	[0]/ [Smoothed]ElementAbundance/[X]
IronFromSNIa				1c	[0]/ IronMassFracFromSNIa; [0]/Mass
IronFromSNIaSmoothed				1c	[0]/ SmoothedIronMassFracFromSNIa; [0]/Mass
KineticEnergy				1b	[0]/Mass; [0]/Velocity
Mass				1	[0]/Mass
MassFromAGB				1b	[0]/ MetalMassFracFromAGB; [0]/Mass
MassFromSNII				1b	[0]/ MetalMassFracFromSNII; [0]/Mass
MassFromSNIa				1b	[0]/ MetalMassFracFromSNIa; [0]/Mass
MassWeightedEntropy*				1c	[0]/Entropy; [0]/Mass
MassWeightedPotential				0	
MassWeightedTemperature*				1c	[0]/Temperature; [0]/ Mass
Metallicity				1c	[0]/Metallicity; [0]/Mass
MetalsFromAGB				1b	[0]/ MetalMassFracFromAGB; [0]/Mass
MetalsFromSNII				1b	[0]/ MetalMassFracFromSNII; [0]/Mass
MetalsFromSNIa				1b	[0]/ MetalMassFracFromSNIa; [0]/Mass
SmoothedMetallicity				1c	[0]/SmoothedMetallicity; [0]/Mass
Spin				1b	[0]/Coordinates; [0]/ Mass; [0]/Velocity
ThermalEnergy*				1	???
TotalEnergy				1	???

Dataset [*: not for stars]	Other known issues	Test result (CE-5/ S11)	Test result (CE-14/ S29)	Complexity level	Particle property (in addition to [0]/ StarFormationRate)
Issue level meanings					

Dataset [*: not for stars]	Other subhalo property	Comments		
[Smoothed]ElementAbundance/[X]				
IronFromSNIa				
IronFromSNIaSmoothed				
KineticEnergy	Velocity			
Mass				
MassFromAGB				
MassFromSNII				
MassFromSNIa				
MassWeightedEntropy*				
MassWeightedPotential				
MassWeightedTemperature*				
Metallicity				
MetalsFromAGB				
MetalsFromSNII				
MetalsFromSNIa				
SmoothedMetallicity				
Spin	Velocity			
ThermalEnergy*		Calculated as mass * entropy / (gamma-1) * weighted_density^(gamma-1)		
TotalEnergy				

Dataset [*: not for stars]	Other subhalo property	Comments		
Issue level meanings				

Table 1

Dataset	Meaning	Dimensions	Data units	Target astro units	Subfind consistency problems
AExpMaximumTemperature	Expansion factor when particle reached its peak temperature until current time.	[N]	None	None	Fine
Coordinates	Co-moving coordinates of particles.	[N, 3]	h^-1 cMpc	pMpc	Fine
Density	Co-moving mass density of particles.	[N]	h^2 * 10^10 M_sun cMpc^-3	???	Fine
ElementAbundance/[X]	Mass fraction of different elements	[N]	None	None	Fine
Entropy	Particle pseudo-entropy	[N]	[Complex]	???	Fine
GroupNumber	Non-Subfind FOF group index of particle	[N]	N/A	N/A	Expected
HostHalo_TVir_Mass	Estimate of halo's viral temperature from its DM mass.	[N]	K	K	Expected
InternalEnergy	Specific thermal energy.	[N]	km^2 s^-2	km^2 s^-2	Minor (expected)
IronMassFracFromSNIa	Fraction of particle mass contributed by Iron from SNIa.	[N]	None	None	Fine
Mass	Particle mass	[N]	10^10 h^-1 M_sun	M_sun	Fine
MaximumTemperature	Peak temperature of the particle so far.	[N]	K	K	Fine
MetalMassFracFromAGB	Fraction of particle mass contributed by metals from AGB stars (and their progenitors).	[N]	None	None	Fine
MetalMassFracFromSNII	Fraction of particle mass contributed by metals from SNII.	[N]	None	None	Fine
MetalMassFracFromSNIa	Fraction of particle mass contributed by metals from SNIa.	[N]	None	None	Fine
MetalMassWeightedRedshift	Metal mass weighted redshift of particle enrichment	[N]	None	None	Fine
Metallicity	Fraction of particle mass contributed by elements heavier than He.	[N]	None	None	Fine
OnEquationOfState	Flag for whether particle is, or has ever been, star forming.	[N]	None	None	N/A
ParticleIDs	Unique ID for each particle.	[N]	N/A	N/A	Fine
SmoothedElementAbundance/[X]	Smoothed mass fraction of different elements	[N]	None	None	Major (expected?)
SmoothedIronMassFracFromSNIa	Fraction of particle mass contributed by Smoothed Fe from SNIa.	[N]	None	None	Major (expected?)
SmoothedMetallicity	Fraction of particle mass contributed by elements heavier than He (smoothed).	[N]	None	None	Major (expected?)
SmoothingLength	Co-moving smoothing length of each particle.	[N]	cMpc	pMpc	Minor (expected?)
StarFormationRate	Instantaneous star formation rate.	[N]	M_sun / yr	M_sun / yr	Fine
Temperature	Temperature of the particle.	[N]	K	K	Minor (expected)
TotalMassFromAGB	Total mass contributed by AGB stars (and their progenitors).	[N]	10^10 h^-1 M_sun	M_sun	Fine
TotalMassFromSNII	Total mass contributed by SNII (and their progenitors).	[N]	10^10 h^-1 M_sun	M_sun	Fine
TotalMassFromSNIa	Total mass contributed by SNIa	[N]	10^10 h^-1 M_sun	M_sun	Fine
Velocity	Co-moving velocity of particle.	[N, 3]	km/s	km/s	Fine

Table 1

Dataset [*: not for PartType1]	Meaning	Dimensions	Data units	Target astro units	Subfind consistency problems [PT2]
Coordinates	Co-moving coordinates of particles.	[N, 3]	h^-1 cMpc	pMpc	Fine
GroupNumber	Non-Subfind FOF group index of particle	[N]	N/A	N/A	Expected
Mass*	Particle mass	[N]	10^10 h^-1 M_sun	M_sun	Fine
ParticleIDs	Unique ID for each particle.	[N]	N/A	N/A	N/A
Velocity	Co-moving velocity of particle.	[N, 3]	km/s	km/s	Fine

Table 1

Dataset	Meaning	Dimensions	Data units	Target astro units	Subfind consistency problems	Usefulness
AExpMaximumTemperature	Expansion factor when progenitor gas particle reached its peak temperature.	[N]	None	None	Major	
BirthDensity	Local, physical gas density at the instant the star particle was born.	[N]	10^10 M_sun cMpc^-3	???	Major	
Coordinates	Co-moving coordinates of particles.	[N, 3]	h^-1 cMpc	pMpc	Fine	
ElementAbundance/[X]	Mass fraction of different elements	[N]	None	None	Major	
Feedback_EnergyFraction	Energy fraction used for SNII feedback (relative to 10^51 ergs?)	[N]	None	None	Major	Monitoring?
GroupNumber	Non-Subfind FOF group index of particle	[N]	N/A	N/A	[Not tested, expected]	None
HostHalo_TVir	Host halo's virial temperature for SNII feedback.	[N]	K	K	[Not tested, expected]	Monitoring?
HostHalo_TVir_Mass	Estimate of halo's viral temperature from its DM mass.	[N]	K	K	[Not tested, expected]	Monitoring?
InitialMass	Star particle mass at formation time.	[N]	10^10 h^-1 M_sun	M_sun	Major	
IronMassFracFromSNIa	Fraction of particle mass contributed by Iron from SNIa.	[N]	None	None	Major	
Mass	Particle mass	[N]	10^10 h^-1 M_sun	M_sun	Fine	
MaximumTemperature	Peak temperature of the progenitor gas particle.	[N]	K	K	Major	
MetalMassFracFromAGB	Fraction of particle mass contributed by metals from AGB stars (and their progenitors).	[N]	None	None	Major	
MetalMassFracFromSNII	Fraction of particle mass contributed by metals from SNII.	[N]	None	None	Major	
MetalMassFracFromSNIa	Fraction of particle mass contributed by metals from SNIa.	[N]	None	None	Major	
MetalMassWeightedRedshift	Metal mass weighted redshift of particle enrichment	[N]	None	None	Major	
Metallicity	Fraction of particle mass contributed by elements heavier than He.	[N]	None	None	Major	
ParticleIDs	Unique ID for each particle.	[N]	N/A	N/A	N/A	
PreviousStellarEnrichment	Expansion factor when the star last did enrichment.	[N]	None	None	Major	Monitoring?
SmoothedElementAbundance/[X]	Smoothed mass fraction of different elements	[N]	None	None	Major	
SmoothedIronMassFracFromSNIa	Fraction of particle mass contributed by Smoothed Fe from SNIa.	[N]	None	None	Major	
SmoothedMetallicity	Fraction of particle mass contributed by elements heavier than He (smoothed).	[N]	None	None	Major	
SmoothingLength	Co-moving smoothing length of each particle. Note that this is with respect to gas neighbours.	[N]	cMpc	pMpc	Fine	
StellarEnrichmentCounter	Number of time steps since enrichment was last done.	[N]	None	None	Major	Monitoring?
StellarFormationTime	Expansion factor when the star particle was born.	[N]	None	None	Major	
TotalMassFromAGB	Total mass contributed by AGB stars (and their progenitors).	[N]	10^10 h^-1 M_sun	M_sun	Major	
TotalMassFromSNII	Total mass contributed by SNII (and their progenitors).	[N]	10^10 h^-1 M_sun	M_sun	Major	
TotalMassFromSNIa	Total mass contributed by SNIa	[N]	10^10 h^-1 M_sun	M_sun	Major	
Velocity	Co-moving velocity of particle.	[N, 3]	km/s	km/s	Fine	

Table 1

Dataset	Meaning	Dimensions	Units	Target ‘astro' units	Subfind consistency problems	Other known issues
BH_AccretionLength	Co-moving smoothing length of each particle. Note that this is with respect to gas neighbours.	[N]	h^-1 cMpc	pMpc	Fine	Duplicate of SmoothingLength
BH_CumlAccrMass	Total mass accreted by main progenitor of this BH from Bondi-Hoyle accretion.	[N]	10^10 h^-1 M_sun	M_sun	Major	Not computed correctly.
BH_CumlNumSeeds	Total number of seeds that have merged into this BH.	[N]	None	None	Major [actually, small, but extremely uniform]	Not computed correctly.
BH_Density	Co-moving density of gas around the BH.	[N]	h^2 10^10 M_sun cMpc^-3	???	Major	Monitoring?
BH_EnergyReservoir	Current energy left over for the BH to do feedback.	[N]	10^10 h^-1 M_sun km^2 s^-2	M_sun km^2 s^-2	Major	
BH_FormationTime	Expansion factor when the BH was born. Note that this refers to the ID-branch, which is generally not tracing back the main progenitor in mergers.	[N]	None	None	Major	Not very meaningful
BH_Mass	Subgrid mass of the BH.	[N]	10^10 h^-1 M_sun	M_sun	Major	
BH_Mdot	Instantaneous accretion rate of the BH.	[N]	[Complex]	M_sun/yr	Major	Strongly time-varying, hence not too meaningful…
BH_MostMassiveProgenitorID	ID of the most massive progenitor the BH has swallowed.	[N]	None	None	Major	Not computed correctly.
BH_Pressure	Pressure of the gas surrounding the BH.	[N]	[Complex]	???	Major	Monitoring?
BH_SoundSpeed	(Physical) sound speed of the gas surrounding the BH.	[N]	km/s	km/s	Major	Monitoring?
BH_SurroundingGasVel	Velocity of the gas surrounding the BH.	[N, 3]	a^-1 km/s	km/s	Major	Monitoring?
BH_TimeLastMerger	Expansion factor when the BH last swallowed another BH; 0 if it never did so.	[N]	None	None	Major [actually, small, but extremely uniform]	
BH_WeightedDensity	Weighted density of gas surrounding the BH.	[N]	h^2 10^10 M_sun cMpc^-3	???	Major	Monitoring?
Coordinates	Co-moving coordinates of particles.	[N, 3]	h^-1 cMpc	pMpc	Fine	
GroupNumber	Non-Subfind FOF group index of particle	[N]	N/A	N/A	Not tested [expected]	
HostHalo_TVir_Mass	Estimate of halo’s viral temperature from its DM mass.	[N]	K	K	Not tested [expected]	Monitoring?
Mass	Particle mass	[N]	10^10 h^-1 M_sun	M_sun	Fine	
ParticleIDs	Unique ID for each particle.	[N]	N/A	N/A	N/A	
SmoothingLength	Co-moving smoothing length of each particle. Note that this is with respect to gas neighbours.	[N]	h^-1 cMpc	pMpc	Fine	Duplicate of BH_AccretionLength
Velocity	Co-moving velocity of particle.	[N, 3]	km/s	km/s	Fine	