Table 1: JVAL Photolysis reactions (version from March 29, 2021)

#	reaction	reference for spectrum
J1000	$O_2 \stackrel{h\nu}{\rightarrow} O + O$	Sander et al. (2011), Lyman-alpha from Chabrillat and Kockarts (1997) and Chabrillat and Kockarts (1998), Schumann-Runge band parameterization from Koppers and Murtagh (1996)
J1001b	$O_3 \stackrel{h\nu}{\rightarrow} O(^3P) + O_2$	Sander et al. (2011)
J1001a	$O_3 \stackrel{h\nu}{\rightarrow} O(^1D) + O_2$	Sander et al. (2011)
J2101	$H_2O_2 \stackrel{h\nu}{\rightarrow} OH + OH$	Sander et al. (2011)
J3101	$NO_2 \stackrel{h\nu}{\rightarrow} NO + O$	Sander et al. (2011)
J3103a	$NO_3 \stackrel{h\nu}{\rightarrow} NO_2 + O$	Sander et al. (2011)
J3103b	$NO_3 \stackrel{h\nu}{\rightarrow} NO + O_2$	Sander et al. (2011)
J3104	$N_2O_5 \stackrel{h\nu}{\rightarrow} NO_2 + NO_3$	Sander et al. (2011)
J3201	$HNO_3 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J3202	$HNO_4 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011), IR overtones from Roehl et al. (2002)
J42004	$PAN \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J3200	$HONO \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J4100	$CH_3OOH \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011) up to 405 nm, Matthews et al. (2005) above 600 nm, zero in between
J41001a	$HCHO \stackrel{h\nu}{\rightarrow} CO + H_2$	Sander et al. (2011), quantum yields at 300 K and 1 atm
J41001b	$HCHO \stackrel{h\nu}{\rightarrow} CHO + H$	Sander et al. (2011), quantum yields at 300 K and 1 atm
J42002	$CH_3CO_3H \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J42001a	$CH_3CHO \stackrel{h\nu}{\rightarrow} CH_3 + CHO$	Sander et al. (2011)
J43001	$CH_3COCH_3 \stackrel{h\nu}{\rightarrow}$ products	Hardcoded from old JVAL code. Pressure dependent.
J43003	$MGLYOX \stackrel{h\nu}{\rightarrow}$ products	Hardcoded from old JVAL code. Pressure dependent.
J6201	$HOCl \stackrel{h\nu}{\rightarrow} OH + Cl$	Sander et al. (2011)
J6101	$OClO \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011), value at 204 K
J6100	$Cl_2O_2 \stackrel{h\nu}{\rightarrow} Cl + ClO_2$	Sander et al. (2011)
J6301a	$ClNO_3 \stackrel{h\nu}{\rightarrow} Cl + NO_3$	Sander et al. (2011)
J6300	$ClNO_2 \stackrel{h\nu}{\rightarrow}$ products	Ghosh et al. (2012)
J6000	$Cl_2 \stackrel{h\nu}{\rightarrow} 2Cl$	Sander et al. (2011)
J7100	$BrO \stackrel{h\nu}{\rightarrow} Br + O$	Sander et al. (2011)
J7200	$HOBr \stackrel{h\nu}{\rightarrow} OH + Br$	Sander et al. (2011)
J7600	$BrCl \stackrel{h\nu}{\rightarrow} Br + Cl$	Sander et al. (2011), based on formula by Maric et al. (1994)
J7301	$BrNO_3 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J7300	$BrNO_2 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J7000	$Br_2 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J6401	$CCl_4 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J6400	$CH_3Cl \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J6402	$CH_3CCl_3 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)
J6500	$CFCl_3 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011), formula for temperature-dependence from DeMore et al. (1997)
J6501	$CF_2Cl_2 \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011), formula for temperature-dependence from DeMore et al. (1997)
J7400	$CH_3Br \stackrel{h\nu}{\rightarrow}$ products	Sander et al. (2011)

Table 1: Photolysis reactions (... continued)

#	reaction	reference for spectrum
J7601	$CF_2ClBr \xrightarrow{h\nu}$ products	Sander et al. (2011)
J7500	$CF_3Br \xrightarrow{h\nu}$ products	Sander et al. (2011)
J8401	$CH_3I \xrightarrow{h\nu}$ products	Sander et al. (2011), using data at 298 K, temperature dependence not considered
J8402	$C_3H_7I \xrightarrow{h\nu}$ products	Sander et al. (2011)
J8403	$CH_2ClI \xrightarrow{h\nu}$ products	Sander et al. (2011), using data for 298 K, temperature dependence not considered
J8400	$CH_2I_2 \xrightarrow{h\nu}$ products	Sander et al. (2011), using data for 298 K, temperature dependence not considered
J8100	$IO \xrightarrow{h\nu} I + O$	Sander et al. (2011)
J8200	$HOI \xrightarrow{h\nu}$ products	Sander et al. (2011)
J8000	$I_2 \xrightarrow{h\nu} 2I$	Keller-Rudek et al. (2013), based on Sander et al. (2006)
J8600	$ICl \xrightarrow{h\nu}$ products	Sander et al. (2011), values shown as "< 1" in their Table 4H-10 were set to 0
J8700	$IBr \xrightarrow{h\nu}$ products	Sander et al. (2011)
J8300	$INO_2 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J8301	$INO_3 \xrightarrow{h\nu}$ products	Sander et al. (2011)
	$SO_2 \xrightarrow{h\nu} SO_2^*$	Danielache et al. (2008), quantum yield for dissociation is unknown.
	$SO_3 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J9000	$OCS \xrightarrow{h\nu}$ products	Sander et al. (2011)
J2100	$H_2O \xrightarrow{h\nu} H + OH$	Sander et al. (2011)
J3100	$N_2O \xrightarrow{h\nu} N_2 + O(^1D)$	Sander et al. (2011)
J3102	$NO \xrightarrow{h\nu} N + O$	Hardcoded from old JVAL code.
J41002	$CO_2 \xrightarrow{h\nu} CO + O$	Shemansky (1972), Lyman-alpha from Inn et al. (1953)
J6200	$HCl \xrightarrow{h\nu} H + Cl$	Sander et al. (2011)
J7603	$CHCl_2Br \xrightarrow{h\nu}$ products	Sander et al. (2011)
J7604	$CHClBr_2 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J7602	$CH_2ClBr \xrightarrow{h\nu}$ products	Sander et al. (2011)
J7401	$CH_2Br_2 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J7402	$CHBr_3 \xrightarrow{h\nu}$ products	Sander et al. (2011), formula for temperature-dependence not only used for 290-340 nm but also for > 340 nm.
J9002	$SF_6 \xrightarrow{h\nu}$ products	Lyman-alpha from Ravishankara et al. (1993)
J6301b	$ClNO_3 \xrightarrow{h\nu} ClO + NO_2$	Sander et al. (2011)
J44008	$MACR \xrightarrow{h\nu}$ products	Hardcoded from old JVAL code. Pressure dependent.
J44001	$MVK \xrightarrow{h\nu}$ products	Hardcoded from old JVAL code. Pressure dependent.
J42008	$CHOCHO \xrightarrow{h\nu} 2CHO$	Hardcoded from old JVAL code. Pressure dependent.
J42005	$HOCH_2CHO \xrightarrow{h\nu}$ products	Sander et al. (2011)
J41003	$CH_4 \xrightarrow{h\nu}$ products	Lyman-alpha from Fig. 1 of Turco (1975)
	$H_2SO_4 \xrightarrow{h\nu} SO_3 + H_2O$	Hardcoded from old JVAL code.
	$C_3O_2 \xrightarrow{h\nu}$ products	Stephan Kessel, pers. comm.
J41005	$CH_3NO_3 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J41006	$CH_3O_2NO_2 \xrightarrow{h\nu}$ products	Atkinson et al. (2006)

Table 1: Photolysis reactions (... continued)

#	reaction	reference for spectrum
J41004	$CH_3ONO \xrightarrow{h\nu}$ products	Sander et al. (2011), using $\varphi = 0.76$ for all wavelengths
J41008	$CH_3O_2 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J41009	$HCOOH \xrightarrow{h\nu}$ products	Sander et al. (2011)
J6500dc01	$CHF_2Cl \xrightarrow{h\nu}$ products	Sander et al. (2011)
J42019	$C_2H_5NO_3 \xrightarrow{h\nu}$ products	Atkinson et al. (2006)
J43007	$NOA \xrightarrow{h\nu}$ products	Barnes et al. (1993)
J44025	$3-nitrooxy-2-butanone \xrightarrow{h\nu}$ products	Barnes et al. (1993)
J47403	$BENZAL \xrightarrow{h\nu} HCO + C_6H_5$	Wallington et al. (2018)
	$3-Me-2-nitrophenol \xrightarrow{h\nu} HONO +$ products	Chen et al. (2011)
J46405	$2-nitrophenol \xrightarrow{h\nu} HONO +$ products	Chen et al. (2011)
J42001b	$CH_3CHO \xrightarrow{h\nu} CH_2{=}CHOH$	Andrews et al. (2012)
J43018	$CH_3COCO_2H \xrightarrow{h\nu}$ products	Sander et al. (2011)
J44038	$(CH_3)_2CHCHO \xrightarrow{h\nu} (CH_3)_2CH + CHO$	Allan et al. (2007)
J43025a	$CH_3CH_2CHO \xrightarrow{h\nu} CH_3CH_2 + CHO$	Allan et al. (2007)
J43025b	$CH_3CH_2CHO \xrightarrow{h\nu} CH_3CHCHOH$	Zhou et al. (2008)
J44037a	$CH_3CH_2CH_2CHO \xrightarrow{h\nu} CH_3CH_2CH_2 + CHO$	Allan et al. (2007)
J44037b	$CH_3CH_2CH_2CHO \xrightarrow{h\nu} CH_2CH_2 + CH_2CHOH$	Zhou et al. (2008)
	$2,4-pentanedione \xrightarrow{h\nu}$ products	Messaadia et al. (2015)
J40203a	$PINAL \xrightarrow{h\nu} C96O2 + CHO$	Allan et al. (2007)
J40203b	$PINAL \xrightarrow{h\nu} PINENOL$	Andrews et al. (2012)
J6500dc02	$CF_2ClCFCl_2 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J6500dc03	$CH_3CFCl_2 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J6500dc05	$CF_3CF_2Cl \xrightarrow{h\nu}$ products	Sander et al. (2011)
J6500dc04	$CF_2ClCF_2Cl \xrightarrow{h\nu}$ products	Sander et al. (2011)
J6400dc02	$CHCl_3 \xrightarrow{h\nu}$ products	Sander et al. (2011)
J6400dc01	$CH_2Cl_2 \xrightarrow{h\nu}$ products	Sander et al. (2011)
	$HO_2 \xrightarrow{h\nu} OH + O3P$	Sander et al. (2011)
	$ClO \xrightarrow{h\nu} O3P + Cl$	Sander et al. (2011)
J42022	$HOOCCOOH \xrightarrow{h\nu} CO_2 + 0.72HCOOH + 0.28CO + 0.28H_2O$	
J????	$Cl_2O \xrightarrow{h\nu} Cl + ClO$	Atkinson et al. (2007)
J????	$Cl_2O_3 \xrightarrow{h\nu}$ products	Atkinson et al. (2007)
J????	$ClNO \xrightarrow{h\nu} Cl + NO$	Atkinson et al. (2007)
J????	$ClONO \xrightarrow{h\nu} Cl + NO_2$	Atkinson et al. (2007)

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