Tables

Station	Date	Latitude (N)	Longitude (E)	Water depth (m)	Snow thickness (m)	SIC (%)	$K_d(PAR)$ (m^{-1})
19	2015-05-28	81.17	19.13	−377	0.20	71	0.59
27	2015-05-31	81.39	17.59	−876	0.27	96	0.25
31	2015-06-03	81.62	19.43	−1963	0.36	97	0.22
39	2015-06-11	81.92	13.46	−1589	0.18	99	0.15
43	2015-06-15	82.21	7.59	−804	0.20	100	0.14
46	2015-06-17	81.89	9.73	−906	0.10	100	0.07
47	2015-06-19	81.35	13.61	−2171	0.14	100	0.17

Table 1: Physical characteristics of the seven stations sampled during the TRANSSIZ campaign of 2015.

Symbol	Description
$PP_{Openwater}$	Primary production estimated using 100% transmittance.
$PP^{ROV}_{Underice}$	Primary production estimated using underice transmittance values measured by the ROV.
PP^{ROV}_{Mixing}	Primary production estimated using a mixing model approach combining underice transmittance values measured by the ROV and satellite-derived SIC.
$PP^{SUIT}_{Underice}$	Primary production estimated using underice transmittance values measured by the SUIT.
$PP^{SUIT}_{Underice}$	Primary production estimated using a mixing model approach combining underice transmittance values measured by the SUIT and satellite-derived SIC.

Table 2: Descriptions of the symbols used to identify the four types of primary production modeled in this study.

Model	Relative error threshold 10%	15%	20%	25%
$PP_{\text{ROV}}^{\text{Mixing}}$	100	51	28	16
$PP_{\text{ROV}}^{\text{Underice}}$	359	159	80	61
$PP_{\text{SUIT}}^{\text{Mixing}}$	28	13	7	4
$PP_{\text{SUIT}}^{\text{Underice}}$	86	41	23	15

Table 3: Number of measurements needed to reach various relative error thresholds.