

Real (m_{re}) and imaginary (m_{im}) parts of the complex index of refraction of ice at -7 C from 43 nm to 2 m wavelength (λ). From Warren and Brandt (2008). Replaces Tables 1 and 2 of Warren (1984).

$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}
4.430E-2	0.8228	1.640E-1	1.210E-1	1.3929	2.470E-1	1.790E-1	1.4390	4.081E-6
4.510E-2	0.8250	1.730E-1	1.240E-1	1.4061	2.240E-1	1.810E-1	1.4326	1.570E-6
4.590E-2	0.8255	1.830E-1	1.272E-1	1.3999	1.950E-1	1.830E-1	1.4268	5.403E-7
4.680E-2	0.8258	1.950E-1	1.295E-1	1.3777	1.740E-1	1.850E-1	1.4215	1.829E-7
4.770E-2	0.8263	2.080E-1	1.305E-1	1.3607	1.720E-1	1.870E-1	1.4167	6.218E-8
4.860E-2	0.8281	2.230E-1	1.319E-1	1.3389	1.800E-1	1.890E-1	1.4122	2.113E-8
4.960E-2	0.8347	2.400E-1	1.333E-1	1.3210	1.940E-1	1.910E-1	1.4081	7.181E-9
5.060E-2	0.8428	2.500E-1	1.348E-1	1.3030	2.130E-1	1.930E-1	1.4043	2.440E-9
5.170E-2	0.8483	2.590E-1	1.362E-1	1.2871	2.430E-1	1.950E-1	1.4007	8.289E-10
5.280E-2	0.8505	2.680E-1	1.370E-1	1.2849	2.710E-1	1.970E-1	1.3974	2.816E-10
5.390E-2	0.8497	2.790E-1	1.378E-1	1.2851	2.890E-1	1.990E-1	1.3943	9.565E-11
5.510E-2	0.8489	2.970E-1	1.387E-1	1.2970	3.340E-1	2.010E-1	1.3914	3.249E-11
5.640E-2	0.8519	3.190E-1	1.393E-1	1.3151	3.440E-1	2.019E-1	1.3901	2.0E-11
5.770E-2	0.8566	3.400E-1	1.409E-1	1.3575	3.820E-1	2.100E-1	1.3801	<2.0E-11
5.900E-2	0.8647	3.660E-1	1.425E-1	1.4130	4.010E-1	2.500E-1	1.3509	<2.0E-11
6.050E-2	0.8797	3.920E-1	1.435E-1	1.4525	4.065E-1	3.000E-1	1.3339	<2.0E-11
6.200E-2	0.8970	4.160E-1	1.442E-1	1.4845	4.050E-1	3.500E-1	1.3249	<2.0E-11
6.360E-2	0.9173	4.400E-1	1.450E-1	1.5157	3.890E-1	3.900E-1	1.3203	2.0E-11
6.530E-2	0.9400	4.640E-1	1.459E-1	1.5484	3.770E-1	4.000E-1	1.3194	2.365E-11
6.700E-2	0.9679	4.920E-1	1.468E-1	1.5729	3.450E-1	4.100E-1	1.3185	2.669E-11
6.890E-2	1.0093	5.170E-1	1.476E-1	1.5915	3.320E-1	4.200E-1	1.3177	3.135E-11
7.080E-2	1.0536	5.280E-1	1.480E-1	1.6021	3.150E-1	4.300E-1	1.3170	4.140E-11
7.290E-2	1.0986	5.330E-1	1.485E-1	1.6077	2.980E-1	4.400E-1	1.3163	6.268E-11
7.380E-2	1.1183	5.340E-1	1.494E-1	1.6156	2.740E-1	4.500E-1	1.3157	9.239E-11
7.510E-2	1.1449	5.310E-1	1.512E-1	1.6220	2.280E-1	4.600E-1	1.3151	1.325E-10
7.750E-2	1.1885	5.240E-1	1.531E-1	1.6311	1.980E-1	4.700E-1	1.3145	1.956E-10
8.000E-2	1.2273	5.100E-1	1.540E-1	1.6345	1.720E-1	4.800E-1	1.3140	2.861E-10
8.270E-2	1.2629	5.000E-1	1.550E-1	1.6363	1.560E-1	4.900E-1	1.3135	4.172E-10
8.550E-2	1.3117	4.990E-1	1.569E-1	1.6353	1.100E-1	5.000E-1	1.3130	5.889E-10
8.860E-2	1.3807	4.680E-1	1.580E-1	1.6309	8.300E-2	5.100E-1	1.3126	8.036E-10
9.180E-2	1.4091	3.800E-1	1.589E-1	1.6214	5.800E-2	5.200E-1	1.3121	1.076E-9
9.300E-2	1.4028	3.600E-1	1.610E-1	1.5818	2.200E-2	5.300E-1	1.3117	1.409E-9
9.540E-2	1.3948	3.390E-1	1.630E-1	1.5482	8.473E-3	5.400E-1	1.3114	1.813E-9
9.920E-2	1.3964	3.180E-1	1.650E-1	1.5225	3.263E-3	5.500E-1	1.3110	2.289E-9
1.033E-1	1.4047	2.910E-1	1.670E-1	1.5027	1.256E-3	5.600E-1	1.3106	2.839E-9
1.078E-1	1.3981	2.510E-1	1.690E-1	1.4870	4.837E-4	5.700E-1	1.3103	3.461E-9
1.100E-1	1.3886	2.440E-1	1.710E-1	1.4743	1.862E-4	5.800E-1	1.3100	4.159E-9
1.127E-1	1.3806	2.390E-1	1.730E-1	1.4635	7.165E-5	5.900E-1	1.3097	4.930E-9
1.140E-1	1.3772	2.390E-1	1.750E-1	1.4543	2.757E-5	6.000E-1	1.3094	5.730E-9
1.181E-1	1.3783	2.440E-1	1.770E-1	1.4462	1.061E-5	6.100E-1	1.3091	6.890E-9

Real (m_{re}) and imaginary (m_{im}) parts of the complex index of refraction of ice at -7 C from 43 nm to 2 m wavelength (λ). From Warren and Brandt (2008). Replaces Tables 1 and 2 of Warren (1984).

$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}
6.200E-1	1.3088	8.580E-9	1.020E+0	1.3012	2.250E-6	1.420E+0	1.2934	5.959E-5
6.300E-1	1.3085	1.040E-8	1.030E+0	1.3010	2.330E-6	1.430E+0	1.2931	1.028E-4
6.400E-1	1.3083	1.220E-8	1.040E+0	1.3009	2.330E-6	1.440E+0	1.2929	1.516E-4
6.500E-1	1.3080	1.430E-8	1.050E+0	1.3007	2.170E-6	1.449E+0	1.2927	2.030E-4
6.600E-1	1.3078	1.660E-8	1.060E+0	1.3005	1.960E-6	1.460E+0	1.2924	2.942E-4
6.700E-1	1.3076	1.890E-8	1.070E+0	1.3003	1.810E-6	1.471E+0	1.2921	3.987E-4
6.800E-1	1.3073	2.090E-8	1.080E+0	1.3002	1.740E-6	1.481E+0	1.2920	4.941E-4
6.900E-1	1.3071	2.400E-8	1.090E+0	1.3000	1.730E-6	1.493E+0	1.2918	5.532E-4
7.000E-1	1.3069	2.900E-8	1.100E+0	1.2998	1.700E-6	1.504E+0	1.2916	5.373E-4
7.100E-1	1.3067	3.440E-8	1.110E+0	1.2997	1.760E-6	1.515E+0	1.2914	5.143E-4
7.200E-1	1.3065	4.030E-8	1.120E+0	1.2995	1.820E-6	1.527E+0	1.2912	4.908E-4
7.300E-1	1.3062	4.300E-8	1.130E+0	1.2993	2.040E-6	1.538E+0	1.2909	4.594E-4
7.400E-1	1.3060	4.920E-8	1.140E+0	1.2991	2.250E-6	1.563E+0	1.2903	3.858E-4
7.500E-1	1.3059	5.870E-8	1.150E+0	1.2990	2.290E-6	1.587E+0	1.2897	3.105E-4
7.600E-1	1.3057	7.080E-8	1.160E+0	1.2988	3.040E-6	1.613E+0	1.2890	2.659E-4
7.700E-1	1.3055	8.580E-8	1.170E+0	1.2986	3.840E-6	1.650E+0	1.2879	2.361E-4
7.800E-1	1.3053	1.020E-7	1.180E+0	1.2984	4.770E-6	1.680E+0	1.2870	2.046E-4
7.900E-1	1.3051	1.180E-7	1.190E+0	1.2982	5.760E-6	1.700E+0	1.2863	1.875E-4
8.000E-1	1.3049	1.340E-7	1.200E+0	1.2980	6.710E-6	1.730E+0	1.2853	1.650E-4
8.100E-1	1.3047	1.400E-7	1.210E+0	1.2979	8.660E-6	1.760E+0	1.2843	1.522E-4
8.200E-1	1.3046	1.430E-7	1.220E+0	1.2977	1.020E-5	1.800E+0	1.2828	1.411E-4
8.300E-1	1.3044	1.450E-7	1.230E+0	1.2975	1.130E-5	1.830E+0	1.2816	1.302E-4
8.400E-1	1.3042	1.510E-7	1.240E+0	1.2973	1.220E-5	1.840E+0	1.2811	1.310E-4
8.500E-1	1.3040	1.830E-7	1.250E+0	1.2971	1.290E-5	1.850E+0	1.2807	1.339E-4
8.600E-1	1.3039	2.150E-7	1.260E+0	1.2969	1.320E-5	1.855E+0	1.2805	1.377E-4
8.700E-1	1.3037	2.650E-7	1.270E+0	1.2967	1.350E-5	1.860E+0	1.2802	1.432E-4
8.800E-1	1.3035	3.350E-7	1.280E+0	1.2965	1.330E-5	1.870E+0	1.2797	1.632E-4
8.900E-1	1.3033	3.920E-7	1.290E+0	1.2963	1.320E-5	1.890E+0	1.2788	2.566E-4
9.000E-1	1.3032	4.200E-7	1.300E+0	1.2961	1.320E-5	1.905E+0	1.2780	4.081E-4
9.100E-1	1.3030	4.440E-7	1.310E+0	1.2959	1.310E-5	1.923E+0	1.2771	7.060E-4
9.200E-1	1.3028	4.740E-7	1.320E+0	1.2957	1.320E-5	1.942E+0	1.2762	1.108E-3
9.300E-1	1.3027	5.110E-7	1.330E+0	1.2955	1.320E-5	1.961E+0	1.2756	1.442E-3
9.400E-1	1.3025	5.530E-7	1.340E+0	1.2953	1.340E-5	1.980E+0	1.2750	1.614E-3
9.500E-1	1.3023	6.020E-7	1.350E+0	1.2951	1.390E-5	2.000E+0	1.2744	1.640E-3
9.600E-1	1.3022	7.550E-7	1.360E+0	1.2949	1.420E-5	2.020E+0	1.2736	1.566E-3
9.700E-1	1.3020	9.260E-7	1.370E+0	1.2946	1.480E-5	2.041E+0	1.2728	1.458E-3
9.800E-1	1.3019	1.120E-6	1.380E+0	1.2944	1.580E-5	2.062E+0	1.2718	1.267E-3
9.900E-1	1.3017	1.330E-6	1.390E+0	1.2941	1.740E-5	2.083E+0	1.2707	1.023E-3
1.000E+0	1.3015	1.620E-6	1.400E+0	1.2939	1.980E-5	2.105E+0	1.2694	7.586E-4
1.010E+0	1.3014	2.000E-6	1.410E+0	1.2937	3.442E-5	2.130E+0	1.2677	5.255E-4

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$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}
2.150E+0	1.2663	4.025E-4	3.003E+0	1.0390	4.380E-1	4.580E+0	1.3491	2.883E-2
2.170E+0	1.2648	3.235E-4	3.021E+0	1.0722	4.930E-1	4.719E+0	1.3470	1.940E-2
2.190E+0	1.2633	2.707E-4	3.040E+0	1.1259	5.540E-1	4.904E+0	1.3379	1.347E-2
2.220E+0	1.2609	2.228E-4	3.058E+0	1.2089	6.120E-1	5.000E+0	1.3325	1.240E-2
2.240E+0	1.2591	2.037E-4	3.077E+0	1.3215	6.250E-1	5.100E+0	1.3268	1.220E-2
2.245E+0	1.2587	2.026E-4	3.096E+0	1.4225	5.930E-1	5.200E+0	1.3212	1.302E-2
2.250E+0	1.2582	2.035E-4	3.115E+0	1.4933	5.390E-1	5.263E+0	1.3176	1.380E-2
2.260E+0	1.2573	2.078E-4	3.135E+0	1.5478	4.910E-1	5.400E+0	1.3100	1.683E-2
2.270E+0	1.2564	2.171E-4	3.155E+0	1.5970	4.380E-1	5.556E+0	1.3013	2.232E-2
2.290E+0	1.2545	2.538E-4	3.175E+0	1.6336	3.720E-1	5.714E+0	1.2933	3.256E-2
2.310E+0	1.2525	3.138E-4	3.195E+0	1.6477	3.000E-1	5.747E+0	1.2917	3.539E-2
2.330E+0	1.2504	3.858E-4	3.215E+0	1.6405	2.380E-1	5.780E+0	1.2906	3.883E-2
2.350E+0	1.2482	4.591E-4	3.236E+0	1.6248	1.930E-1	5.814E+0	1.2902	4.270E-2
2.370E+0	1.2459	5.187E-4	3.257E+0	1.6108	1.580E-1	5.848E+0	1.2904	4.643E-2
2.390E+0	1.2435	5.605E-4	3.279E+0	1.5905	1.210E-1	5.882E+0	1.2915	5.045E-2
2.410E+0	1.2409	5.956E-4	3.300E+0	1.5714	1.030E-1	6.061E+0	1.3015	6.439E-2
2.430E+0	1.2382	6.259E-4	3.322E+0	1.5559	8.360E-2	6.135E+0	1.3083	6.560E-2
2.460E+0	1.2337	6.820E-4	3.345E+0	1.5396	6.680E-2	6.250E+0	1.3152	6.360E-2
2.500E+0	1.2270	7.530E-4	3.367E+0	1.5241	5.312E-2	6.289E+0	1.3167	6.265E-2
2.520E+0	1.2232	7.685E-4	3.390E+0	1.5086	4.286E-2	6.329E+0	1.3178	6.170E-2
2.550E+0	1.2169	7.647E-4	3.413E+0	1.4949	3.523E-2	6.369E+0	1.3187	6.101E-2
2.565E+0	1.2135	7.473E-4	3.436E+0	1.4827	2.887E-2	6.410E+0	1.3194	6.031E-2
2.580E+0	1.2097	7.392E-4	3.460E+0	1.4710	2.347E-2	6.452E+0	1.3201	5.964E-2
2.590E+0	1.2071	7.437E-4	3.484E+0	1.4604	1.921E-2	6.494E+0	1.3207	5.899E-2
2.600E+0	1.2043	7.543E-4	3.509E+0	1.4502	1.586E-2	6.579E+0	1.3214	5.780E-2
2.620E+0	1.1983	8.059E-4	3.534E+0	1.4411	1.326E-2	6.667E+0	1.3219	5.700E-2
2.675E+0	1.1776	1.367E-3	3.559E+0	1.4328	1.130E-2	6.757E+0	1.3229	5.680E-2
2.725E+0	1.1507	3.508E-3	3.624E+0	1.4146	8.146E-3	6.897E+0	1.3242	5.428E-2
2.778E+0	1.1083	1.346E-2	3.732E+0	1.3924	6.672E-3	7.042E+0	1.3244	5.161E-2
2.817E+0	1.0657	3.245E-2	3.775E+0	1.3850	6.966E-3	7.143E+0	1.3236	4.940E-2
2.833E+0	1.0453	4.572E-2	3.847E+0	1.3750	8.248E-3	7.246E+0	1.3229	4.840E-2
2.849E+0	1.0236	6.287E-2	3.969E+0	1.3623	1.112E-2	7.353E+0	1.3218	4.600E-2
2.865E+0	1.0001	8.548E-2	4.099E+0	1.3526	1.471E-2	7.463E+0	1.3200	4.440E-2
2.882E+0	0.9747	1.198E-1	4.239E+0	1.3447	1.867E-2	7.576E+0	1.3183	4.290E-2
2.899E+0	0.9563	1.690E-1	4.348E+0	1.3406	2.411E-2	7.692E+0	1.3158	4.041E-2
2.915E+0	0.9538	2.210E-1	4.387E+0	1.3401	2.656E-2	7.812E+0	1.3123	3.911E-2
2.933E+0	0.9678	2.760E-1	4.444E+0	1.3412	2.990E-2	7.937E+0	1.3086	3.819E-2
2.950E+0	0.9873	3.120E-1	4.505E+0	1.3444	3.179E-2	8.065E+0	1.3047	3.760E-2
2.967E+0	1.0026	3.470E-1	4.547E+0	1.3473	3.090E-2	8.197E+0	1.3007	3.724E-2
2.985E+0	1.0180	3.880E-1	4.560E+0	1.3482	3.007E-2	8.333E+0	1.2964	3.700E-2

Real (m_{re}) and imaginary (m_{im}) parts of the complex index of refraction of ice at -7 C from 43 nm to 2 m wavelength (λ). From Warren and Brandt (2008). Replaces Tables 1 and 2 of Warren (1984).

$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}
8.475E+0	1.2917	3.677E-2	1.818E+1	1.5141	7.900E-2	5.574E+1	1.8052	3.860E-1
8.696E+0	1.2835	3.654E-2	1.832E+1	1.5104	7.752E-2	5.640E+1	1.8041	3.508E-1
8.929E+0	1.2735	3.664E-2	1.861E+1	1.5043	7.455E-2	5.700E+1	1.7940	3.196E-1
9.091E+0	1.2655	3.706E-2	1.887E+1	1.4982	7.200E-2	5.746E+1	1.7805	2.981E-1
9.259E+0	1.2561	3.789E-2	1.923E+1	1.4939	7.600E-2	5.840E+1	1.7410	2.659E-1
9.524E+0	1.2387	4.026E-2	1.961E+1	1.4963	7.500E-2	5.929E+1	1.6930	2.569E-1
9.804E+0	1.2151	4.450E-2	2.000E+1	1.4986	6.700E-2	6.000E+1	1.6610	2.785E-1
1.000E+1	1.1926	5.008E-2	2.041E+1	1.4956	5.500E-2	6.100E+1	1.6419	3.076E-1
1.020E+1	1.1659	6.461E-2	2.083E+1	1.4877	4.500E-2	6.125E+1	1.6396	3.146E-1
1.031E+1	1.1501	7.500E-2	2.222E+1	1.4575	2.900E-2	6.250E+1	1.6372	3.471E-1
1.042E+1	1.1323	8.800E-2	2.260E+1	1.4486	2.750E-2	6.378E+1	1.6471	3.748E-1
1.053E+1	1.1136	1.080E-1	2.305E+1	1.4390	2.700E-2	6.467E+1	1.6596	3.902E-1
1.064E+1	1.0971	1.340E-1	2.360E+1	1.4282	2.730E-2	6.558E+1	1.6754	4.024E-1
1.075E+1	1.0867	1.680E-1	2.460E+1	1.4102	2.890E-2	6.655E+1	1.6945	4.115E-1
1.087E+1	1.0833	2.040E-1	2.500E+1	1.4030	3.000E-2	6.760E+1	1.7167	4.167E-1
1.100E+1	1.0886	2.480E-1	2.600E+1	1.3854	3.400E-2	6.900E+1	1.7466	4.167E-1
1.111E+1	1.1023	2.800E-1	2.857E+1	1.3404	5.122E-2	7.053E+1	1.7780	4.089E-1
1.136E+1	1.1439	3.410E-1	3.100E+1	1.2969	8.615E-2	7.300E+1	1.8185	3.830E-1
1.163E+1	1.1983	3.790E-1	3.333E+1	1.2641	1.348E-1	7.500E+1	1.8419	3.543E-1
1.190E+1	1.2546	4.090E-1	3.448E+1	1.2530	1.615E-1	7.629E+1	1.8504	3.340E-1
1.220E+1	1.3194	4.220E-1	3.564E+1	1.2445	1.895E-1	8.000E+1	1.8617	2.944E-1
1.250E+1	1.3822	4.220E-1	3.700E+1	1.2371	2.227E-1	8.297E+1	1.8669	2.679E-1
1.282E+1	1.4412	4.030E-1	3.824E+1	1.2317	2.528E-1	8.500E+1	1.8688	2.519E-1
1.299E+1	1.4683	3.890E-1	3.960E+1	1.2243	2.853E-1	8.680E+1	1.8699	2.390E-1
1.316E+1	1.4928	3.740E-1	4.114E+1	1.2054	3.240E-1	9.080E+1	1.8698	2.140E-1
1.333E+1	1.5132	3.540E-1	4.276E+1	1.1742	3.945E-1	9.517E+1	1.8681	1.913E-1
1.351E+1	1.5300	3.350E-1	4.358E+1	1.1549	4.521E-1	1.000E+2	1.8654	1.706E-1
1.370E+1	1.5458	3.150E-1	4.458E+1	1.1496	5.535E-1	1.200E+2	1.8499	1.151E-1
1.389E+1	1.5596	2.940E-1	4.550E+1	1.1853	6.782E-1	1.600E+2	1.8268	6.684E-2
1.408E+1	1.5701	2.710E-1	4.615E+1	1.2543	7.684E-1	2.100E+2	1.8114	4.282E-2
1.429E+1	1.5775	2.460E-1	4.671E+1	1.3474	8.254E-1	3.000E+2	1.7989	2.549E-2
1.471E+1	1.5762	1.980E-1	4.736E+1	1.4725	8.458E-1	5.000E+2	1.7908	1.405E-2
1.515E+1	1.5637	1.640E-1	4.800E+1	1.5874	8.158E-1	1.300E+3	1.7868	5.173E-3
1.538E+1	1.5559	1.520E-1	4.878E+1	1.6841	7.414E-1	5.000E+3	1.7861	1.337E-3
1.563E+1	1.5481	1.420E-1	5.003E+1	1.7505	6.191E-1	1.900E+4	1.7861	3.574E-4
1.613E+1	1.5353	1.280E-1	5.128E+1	1.7649	5.353E-1	3.900E+4	1.7861	1.839E-4
1.639E+1	1.5302	1.250E-1	5.275E+1	1.7668	4.780E-1	6.100E+4	1.7861	1.294E-4
1.667E+1	1.5294	1.230E-1	5.350E+1	1.7687	4.599E-1	8.600E+4	1.7861	1.058E-4
1.695E+1	1.5306	1.160E-1	5.424E+1	1.7792	4.468E-1	1.100E+5	1.7861	9.675E-5
1.724E+1	1.5303	1.070E-1	5.500E+1	1.7955	4.214E-1	1.400E+5	1.7861	9.360E-5

Real (m_{re}) and imaginary (m_{im}) parts of the complex index of refraction of ice at -7 C from 43 nm to 2 m wavelength (λ). From Warren and Brandt (2008). Replaces Tables 1 and 2 of Warren (1984).

$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}	$\lambda(\mu\text{m})$	m_{re}	m_{im}
1.800E+5	1.7861	9.613E-5						
2.400E+5	1.7861	1.066E-4						
3.400E+5	1.7861	1.312E-4						
5.400E+5	1.7861	1.895E-4						
1.000E+6	1.7861	3.348E-4						
2.000E+6	1.7861	6.596E-4						